105th Congress, 2d Session – – – – – – – – – – – – House Document 105–184

# PROPOSED AGREEMENT FOR COOPERATION BETWEEN THE U.S. AND THE SWISS FEDERAL COUNCIL

## MESSAGE

FROM

# THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

THE TEXT OF A PROPOSED AGREEMENT FOR COOPERATION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE SWISS FEDERAL COUNCIL CONCERNING PEACEFUL USES OF NUCLEAR ENERGY, WITH ACCOMPANYING ANNEX AND AGREED MINUTE, PURSUANT TO 42 U.S.C. 2153(b)

JANUARY 28, 1998.—Message and accompanying papers referred to the Committee on International Relations and ordered to be printed

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*To the Congress of the United States:*

I am pleased to transmit to the Congress, pursuant to sections 123 b. and 123 d. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2153(b), (d)), the text of a proposed Agreement for Cooperation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy, with accompanying agreed minute, annexes, and other attachments. I am also pleased to transmit my written approval, authorization, and determination concerning the agreement, and the memorandum of the Director of the United States Arms Control and Disarmament Agency with the Nuclear Proliferation Assessment Statement concerning the agreement. The joint memorandum submitted to me by the Secretary of State and the Secretary of Energy, which includes a summary of the provisions of the agreement and other attachments, including the views of the Nuclear Regulatory Commission, is also enclosed.

The proposed new agreement with Switzerland has been negotiated in accordance with the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978 (NNPA) and as otherwise amended. It replaces an earlier agreement with Switzerland signed December 30, 1965, which expired by its terms August 8, 1996. The proposed new agreement will provide an updated, comprehensive framework for peaceful nuclear cooperation between the United States and Switzerland, will facilitate such cooperation, and will establish strengthened nonproliferation conditions and controls including all those required by the NNPA. The new agreement provides for the transfer of moderator material, nuclear material, and equipment for both nuclear research and nuclear power purposes. It does not provide for transfers under the agreement of any sensitive nuclear technology (SNT). (U.S. law permits SNT to be transferred outside the coverage of an agreement for cooperation provided that certain other conditions are satisfied. However, the Administration has no plans to transfer SNT to Switzerland outside the agreement.)

The proposed agreement has an initial term of 30 years, and will continue in force indefinitely thereafter in increments of 5 years each until terminated in accordance with its provisions. In the event of termination, key nonproliferation conditions and controls, including guarantees of safeguards, peaceful use and adequate physical protection, and the U.S. right to approve retransfers to third parties, will remain effective with respect to transferred moderator materials, nuclear materials, and equipment, as well as nuclear material produced through their use. The agreement also establishes procedures for determining the survival of additional controls.

Switzerland has strong nonproliferation credentials. It is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

and has an agreement with the International Atomic Energy Agency (IAEA) for the application of full-scope IAEA safeguards within its territory. In negotiating the proposed agreement, the United States and Switzerland took special care to elaborate a preamble setting forth in specific detail the broad commonality of our shared nonproliferation commitments and goals.

The proposed new agreement provides for very stringent controls over certain fuel cycle activities, including enrichment, reprocessing, and alteration in form or content and storage of plutonium and other sensitive nuclear materials. The United States and Switzerland have accepted these controls on a reciprocal basis, not as a sign of either Party's distrust of the other, and not for the purpose of interfering with each other's fuel cycle choices, which are for each Party to determine for itself, but rather as a reflection of our common conviction that the provisions in question represent an important norm for peaceful nuclear commerce.

In view of the strong commitment of Switzerland to the international nonproliferation regime, the comprehensive nonproliferation commitments that Switzerland has made, the advanced technological character of the Swiss civil nuclear program, the long history of U.S.-Swiss cooperation in the peaceful uses of nuclear energy without any risk of proliferation, and the long-standing close and harmonious political relationship between Switzerland and the United States, the proposed new agreement provides to Switzerland advance, long-term U.S. approval for retransfers to specified facilities in the European Atomic Energy Community (EURATOM) of nuclear material subject to the agreement for reprocessing, alteration in form or content, and storage, and for the return to Switzerland of recovered nuclear materials, including plutonium, for use or storage at specified Swiss facilities. The proposed agreement also provides advance, long-term U.S. approval for retransfers from Switzerland of source material, uranium (other than high enriched uranium), moderator material, and equipment to a list of countries and groups of countries acceptable to the United States. Any advance, long-term approval may be suspended or terminated if it ceases to meet the criteria set out in U.S. law, including criteria relating to safeguards and physical protection.

In providing advance, long-term approval for certain nuclear fuel cycle activities, the proposed agreement has features similar to those in several other agreements for cooperation that the United States has entered into subsequent to enactment of the NNPA. These include U.S. agreements with Japan and EURATOM. Among the documents I am transmitting herewith to the Congress is an analysis of the advance, long-term approvals contained in the proposed U.S. agreement with Switzerland. The analysis concludes that the approvals meet all requirements of the Atomic Energy Act, as amended.

I believe that the proposed agreement for cooperation with Switzerland will make an important contribution to achieving our nonproliferation, trade, and other significant foreign policy goals.

In particular, I am convinced that this agreement will strengthen the international nuclear nonproliferation regime, support of which is a fundamental objective of U.S. national security and foreign pol-

icy, by setting a high standard for rigorous nonproliferation conditions and controls.

Because the agreement contains all the consent rights and guarantees required by current U.S. law, it represents a substantial upgrading of the U.S. controls in the recently-expired 1965 agreement with Switzerland.

I believe that the new agreement will also demonstrate the U.S. intention to be a reliable nuclear trading partner with Switzerland, and thus help ensure the continuation and, I hope, growth of U.S. civil nuclear exports to Switzerland.

I have considered the views and recommendations of the interested agencies in reviewing the proposed agreement and have determined that its performance will promote, and will not constitute an unreasonable risk to, the common defense and security. Accordingly, I have approved the agreement and authorized its execution and urge that the Congress give it favorable consideration.

Because this agreement meets all applicable requirements of the Atomic Energy Act, as amended, for agreements for peaceful nuclear cooperation, I am transmitting it to the Congress without exempting it from any requirement contained in section 123 a. of the Act. This transmission shall constitute a submittal for purposes of both sections 123 b. and 123 d. of the Atomic Energy Act. The Administration is prepared to begin immediately the consultations with the Senate Foreign Relations and House International Relations Committees as provided in section 123 b. Upon completion of the 30-day continuous session period provided for in section 123 b., the 60-day continuous session period provided for in section 123 d. shall commence.

WILLIAM J. CLINTON.

THE WHITE HOUSE, *January 28, 1998.*

# Agreement for Co-operation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy

The Government of the United States of America and the Swiss Federal Council (hereinafter referred to as the *Parties*);

Considering their close co-operation in the development, use and control of nuclear energy for peaceful purposes pursuant to the Agreement for Cooperation Between the Government of the United States of America and the Government of Switzerland Concerning Civil Uses of Atomic Energy, signed on 30 December 1965, as amended;

Desiring to continue and expand their co-operation in this field;

Reaffirming their support for strengthening nuclear non-proliferation and disarmament measures on a world-wide basis;

Recognizing the indispensable role of the safeguards system of the International Atomic Energy Agency (hereinafter referred to as the *Agency*) in the maintenance of an effective non-proliferation regime;

Confirming their commitment to the strengthening of *Agency* safeguards, including their readiness to take such steps as are necessary to allow the *Agency* to apply safeguards effectively and efficiently and to attain its inspection goal at nuclear facilities in their respective jurisdictions;

Mindful that both the United States and Switzerland are parties to the Treaty on the Non-Proliferation of Nuclear Weapons of 1 July 1968 (hereinafter referred to as the *Non-Proliferation Treaty*) and have concluded agreements with the *Agency* for the application of safeguards in connection with the *Non-Proliferation Treaty*;

Confirming that the *Non-Proliferation Treaty* is the cornerstone of the global nuclear non-proliferation regime, and that the United States is determined to pursue systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons;

Reaffirming their intention to work closely together and with other states to urge universal adherence to the *Non-Proliferation Treaty* and full realization of the purposes of the preamble and of all the provisions of that treaty;

Bearing in mind that nothing in the *Non-Proliferation Treaty* shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of the Treaty, and that all the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy;

Recalling that the United States of America and Switzerland have ratified the Convention on the Physical Protection of Nuclear Material of 3 March 1980 (published as document INFCIRC/274/Rev.1 of the *Agency*);

Recognizing that the United States of America and Switzerland have decided that they will act in accordance with the principles contained in the Guidelines for Nuclear Transfers of the "Nuclear Suppliers Group" (published as Annexes to documents INFCIRC/254/Rev.2/Parts 1 and 2 of the *Agency* and subsequent revisions and modifications of these documents);

Stressing the importance of Nuclear Suppliers Group principles on full-scope *Agency* safeguards as a condition of transfer to non-nuclear weapon states; on the control of nuclear-related dual-use items; and on the exercise of restraint in the export of sensitive items;

Acknowledging that the separation, storage, transportation and use of plutonium call for continued measures to ensure the avoidance of risk of proliferation;

Desiring to favour commercial arrangements in the peaceful uses of nuclear energy on a predictable and reliable basis which take into account the long-term requirements of their nuclear energy programmes, and reaffirming their opposition to measures that unfairly burden legitimate nuclear commerce;

Have agreed as follows:

**Article 1: Definitions**

For the purpose of this Agreement:

(a) *alteration in form or content* means conversion of plutonium, high enriched uranium or uranium 233 or fabrication of fuel containing plutonium, high enriched uranium or uranium 233; it does not include

- post irradiation examination involving chemical dissolution or separation,
- disassembly or reassembly of fuel assemblies,
- irradiation,
- reprocessing or
- enrichment;

(b) *appropriate authority* means, in the case of Switzerland, the Federal Office of Energy and, in the case of the United States of America, the Department of Energy or such other authority as the *Party* concerned may notify the other *Party*;

(c) *equipment* means

- any reactor as a complete unit other than one designed or used primarily for the formation of plutonium or uranium 233;
- reactor pressure vessels, as complete units or as major shop-fabricated parts therefor, which are especially designed or prepared to contain the core of a reactor and are capable of withstanding the operating pressure of the primary coolant;
- reactor fuel charging and discharging machines as complete units; manipulative equipment designed or prepared for inserting or removing fuel in a reactor capable of on-load operation;
- complete reactor control rod systems, including the control rod drive mechanism especially designed or prepared for the control of the reaction rate in a reactor;
- reactor primary coolant pumps especially designed or prepared for circulating the primary coolant of a reactor;
- any other item so designated jointly by the *Parties;*

(d) *Guidelines* means the Guidelines for Nuclear Transfers (published as Appendix to document INFCIRC/254/Rev.2/Part 1 of the *Agency* and subsequent revisions and modifications as agreed by the *Parties*);

(e) *high enriched uranium* means uranium enriched to twenty percent or more in the isotope $U^{235}$;

(f) *moderator material* means deuterium, heavy water and nuclear grade graphite for reactors as defined in paragraph 2 of Annex B to the *Guidelines*;

(g) *nuclear material* means any source material or special fissionable material as defined below:

- *source material* means depleted uranium, natural uranium, thorium or any other material so designated by agreement of the *Parties*.
- *special fissionable material* means plutonium, uranium 233 or uranium enriched in the isotope 233 or 235, or any other material so designated by agreement of the *Parties;*

(h) *nuclear supply* means *nuclear material, moderator material* and *equipment* transferred pursuant to the Agreement and *nuclear material* used in or produced through the use of such items;

(i) *Recommendations* means the recommendations published in document INFCIRC/225/Rev. 3 of the *Agency* entitled "the Physical Protection of Nuclear Material" and subsequent revisions as agreed by the *Parties*.

**Article 2: Coverage**

1. *Nuclear material, moderator material* and *equipment* transferred from the territory of one *Party* to the territory of the other *Party*, whether directly or through a third country, will be regarded as having been transferred pursuant to the Agreement only upon confirmation by the *appropriate authority* of the recipient *Party* to the *appropriate authority* of the supplier *Party*, that such *nuclear material, moderator material* and *equipment* will be subject to this Agreement and that the proposed recipient of such *nuclear material, moderator material* and *equipment*, other than the *Party*, is an authorized person. Such transfers of *nuclear material, moderator material* and *equipment* may be undertaken between the *Parties* or by authorized persons.

2. With respect to *special fissionable material* produced through the use of *nuclear material* and/or *moderator material* transferred pursuant to this Agreement and used in or produced through the use of *equipment* not so transferred, the provisions of Articles 7, 8, 9, 10 and 11 shall in practice be applied to that proportion of *special fissionable material* produced which represents the ratio of transferred *nuclear material* and/or *moderator material* used in the production of the *special fissionable material* to the total amount of *nuclear material* and/or *moderator material* so used.

3. *Nuclear material* transferred pursuant to this Agreement and *nuclear material* used in or produced through the use of *nuclear material, moderator material* or *equipment* transferred pursuant to this Agreement shall remain subject to the provisions of this Agreement until:

a) the *Parties* determine that it is no longer usable or practicably irrecoverable for processing into a form in which it is usable for any nuclear activity relevant from the point of view of safeguards; or

b) it has been transferred beyond the jurisdiction of either *Party* in accordance with the provisions of Article 7 of this Agreement; or

c) it is otherwise agreed between the *Parties*.

4. *Moderator material* and *equipment* transferred pursuant to this Agreement shall remain subject to the provisions of this Agreement until:

a) the *Parties* agree that it is no longer usable for any nuclear activity relevant from the point of view of safeguards; or

b) it has been transferred beyond the jurisdiction of either *Party* in accordance with the provisions of Article 7 of this Agreement; or

c) it is otherwise agreed between the *Parties*.

5. For the purpose of implementing paragraph 3 a) of this Article, the *Parties* shall accept a determination made by the *Agency* in accordance with the provisions for the termination of the application of safeguards of the relevant safeguards agreement between a *Party* and the *Agency*.

6. Transfers of *nuclear materials* specified in subparagraph i below, and transfers of *source material* or *special fissionable material* to either *Party*, by each individual supplier within the jurisdiction of the other *Party* that are consistent with the limits specified in subparagraph ii below, need not be made subject to the Agreement:

i. Plutonium with an isotopic composition of plutonium 238 exceeding 80%; and *source material* which is used only in non-nuclear activities.

ii. Up to 3 grams of enriched uranium, 0.1 grams of plutonium, or 0.1 grams of uranium 233 as a sensing component in an instrument;

Up to 0.001 effective kilograms (as defined in paragraph 104 of document INFCIRC/153 of the *Agency*) of enriched uranium, plutonium or uranium 233 in a single shipment;

Up to 0.1 effective kilograms (as defined in paragraph 104 of document INFCIRC/153 of the *Agency*) of enriched uranium, plutonium or uranium 233 in any period of 12 months;

*Source material*:

- up to 10 kilograms of non-enriched uranium or thorium as a single shipment; and
- up to 1000 kilograms of non-enriched uranium or thorium in any period of 12 months.

**Article 3: Peaceful uses**

No *nuclear material*, *moderator material* and *equipment* transferred pursuant to this Agreement and no *nuclear material* used in or produced through the use of any such *nuclear material*, *moderator material* or *equipment* shall be used for any nuclear explosive device, for research on any nuclear explosive device or development of any nuclear explosive device, or for any military purpose.

**Article 4: Physical Protection**

Each *Party* shall take such measures as are necessary to ensure, within its jurisdiction, adequate physical protection of *nuclear material* transferred pursuant to this Agreement and any *nuclear material* used in or produced through the use of *nuclear material*, *moderator material* or *equipment* transferred pursuant to this Agreement and apply criteria in accordance with levels of physical protection at least equivalent to those set out in the *Recommendations*.

**Article 5: Safeguards**

1. *Nuclear material* transferred to Switzerland pursuant to this Agreement and any *nuclear material* used in or produced through the use of any *nuclear material*, *moderator material* or *equipment* so transferred shall be subject to safeguards in accordance with the provisions of the agreement between Switzerland and the *Agency* for the application of safeguards in connection with the *Non-proliferation Treaty* signed on 6 September 1978 (published as document INFCIRC/264 of the *Agency*) under which *Agency* safeguards are applied with respect to all *nuclear material* in all nuclear activities within the territory of Switzerland, under its jurisdiction or carried out under its control anywhere.

2. *Nuclear material* transferred to the United States of America pursuant to this Agreement and any *nuclear material* used in or produced through the use of any *nuclear material*, *moderator material* or *equipment* so transferred shall be subject to the provisions of the agreement between the United States of America and the *Agency* for the Application of Safeguards in the United States, signed on December 9, 1980 (published as document INFCIRC/288 of the *Agency*).

3. If the United States of America or Switzerland becomes aware of circumstances which demonstrate that the *Agency* is not or will not be applying safeguards in accordance with the appropriate agreement referred to in paragraph 1 or 2, the *Parties* shall immediately enter into arrangements which conform with *Agency* safeguards principles and procedures and to the coverage required pursuant to those paragraphs, and which provide assurance equivalent to that intended to be secured by the system they replace. These arrangements shall be effected by agreement, other than the appropriate agreement referred to in paragraph 1 or 2, providing for application by the *Agency*. If either *Party* considers the *Agency* unable to apply such safeguards, however, safeguards shall be applied under bilateral arrangements.

**Article 6: Transfers**

1. Cooperation pursuant to this Agreement between the United States of America and Switzerland in the peaceful uses of nuclear energy shall be in accordance with the provisions of this Agreement.

2. *Nuclear material*, *moderator material* and *equipment* may be transferred for applications consistent with this Agreement.

**Article 7: Retransfers**

No *nuclear material*, *moderator material* or *equipment* transferred pursuant to this Agreement and no *special fissionable material* produced through the use of any *nuclear material*,

*moderator material* or *equipment* so transferred shall be retransferred, unless the *Parties* agree, beyond the territorial jurisdiction of the *Party*.

**Article 8: Enrichment of Uranium**

Uranium transferred pursuant to this Agreement or used in or produced through the use of *equipment* so transferred shall not be enriched by a *Party* to twenty percent or more in the isotope $U^{235}$ unless the *Parties* agree.

**Article 9: Reprocessing**

*Nuclear material* transferred pursuant to this Agreement or used in or produced through the use of *nuclear material*, *moderator material* or *equipment* so transferred shall not be reprocessed unless the *Parties* agree.

**Article 10: *Alteration in form or content***

No plutonium, uranium 233, high enriched uranium or irradiated *nuclear material* transferred pursuant to this Agreement or used in or produced through the use of any *nuclear material*, *moderator material* or *equipment* so transferred shall be altered in form or content unless the *Parties* agree.

**Article 11: Storage**

The following shall be stored only in a facility to which the *Parties* agree:

i. plutonium, uranium 233 and *high enriched uranium* (except as contained in irradiated fuel elements) transferred pursuant to this Agreement;

ii. plutonium, uranium 233 and *high enriched uranium* recovered from *nuclear material* transferred pursuant to this Agreement:

iii. plutonium, uranium 233 and *high enriched uranium* recovered from *nuclear material* used in *equipment* transferred pursuant to this Agreement.

**Article 12: Advance, Long-Term Consent**

1. Consistent with the objective of preventing nuclear proliferation and with their respective national security interests, the *Parties* shall satisfy the requirements for agreement set forth in Articles 7, 9, 10 and 11 of this Agreement on a long-term, predictable and reliable basis that will further facilitate peaceful uses of nuclear energy in their respective countries.

2. Agreement to implement this undertaking is contained in an Agreed Minute, which shall constitute an integral part of this Agreement.

3. The *Parties* may also agree on a case-by-case basis to activities covered by Articles 7, 9, 10 and 11 of this Agreement.

**Article 13: Suspension and Termination of Advance, Long-Term Consent**

1. Either *Party* may suspend or terminate in whole or in part any advance, long-term consent given pursuant to Article 12 on the basis of objective evidence that its continuation would entail a serious threat to the security of either *Party*, or a significant increase in the risk of nuclear proliferation, resulting from a situation of the same or greater degree of seriousness as the following:

a) Switzerland detonates a nuclear weapon or any other nuclear explosive device;

b) the United States detonates a nuclear weapon or any other nuclear explosive device using any item subject to this Agreement;

c) either *Party* materially violates, terminates, or declares itself not to be bound by the *Non-Proliferation Treaty*, or the relevant safeguards agreement referred to in Article 5.1. and 5.2., or the *Guidelines*;

d) either *Party* retransfers an item subject to this Agreement to a non-nuclear-weapon state which has not concluded a INFCIRC/153-type safeguards agreement with the *Agency*;

e) a *Party* is subjected to measures taken by the Board of Governors of the *Agency* pursuant to article 19 of the safeguards agreement referred to in Article 5.1, or article 18 of the safeguards agreement referred to in Article 5.2, respectively;

f) acts of war or serious internal disturbances preventing the maintenance of law and order, or serious international tension constituting a threat of war, that threaten severely and directly the safeguarding or physical protection of activities covered by the advance, long-term consent pursuant to Article 12 of this Agreement on the territory of either *Party*.

2. The *Party* considering that such objective evidence may exist shall consult with the other *Party*, at Federal Council level for Switzerland and at Cabinet level for the United States, before reaching any decision.

3. Any such decision that such objective evidence does exist and that activities referred to in Articles 7, 9, 10 and 11 of this Agreement should therefore be suspended, shall be taken only by the Swiss Federal Council or by the President of the United States, as the case may be, and shall be notified in writing to the other *Party*.

4. The *Parties* confirm that, as of the time of entry into force of this Agreement, there exists no objective evidence of any of the threats referred to in paragraph 1 of this Article and that they do not foresee any such threats developing in the future.

5. Actions of governments of third countries or events beyond the territorial jurisdiction of either *Party* shall not be used as a basis for invoking the provisions of paragraph 1 of this Article with respect to activities or facility operations within the *Party's* territorial jurisdiction unless, due to such actions or events, those activities or facility operations would clearly result in a significant increase in the risk of nuclear proliferation or in a serious threat to the security of the *Party* invoking the provisions of paragraph 1 of this Article.

6. The *Party* invoking the provisions of paragraph 1 of this Article shall keep under constant review the development of the situation which prompted the decision and shall withdraw its invocation as soon as warranted.

7. The provisions of paragraph 1 of this Article shall not be invoked due to differences over the nature of a *Party's* peaceful nuclear programmes or fuel cycle choices, or for the purpose of obtaining commercial advantage, or of delaying, hampering or hindering the peaceful nuclear programmes or activities of the other *Party*, or its peaceful nuclear co-operation with third countries.

8. Any decision to invoke the provisions of paragraph 1 of this Article shall only be taken in the most extreme circumstances of exceptional concern from a non-proliferation or security point of view and shall be applied for the minimum period of time necessary to deal in a manner acceptable to the *Parties* with the exceptional case.

**Article 14: Multiple Supplier Controls**

If an agreement between either *Party* and another state or group of states provides such other state or group of states rights equivalent to any or all of those set forth under Articles 7 to 11 of this Agreement with respect to any *nuclear material, moderator material* or *equipment* subject to this Agreement, the *Parties* may, upon the request of either of them, agree that the implementation of any such rights will be accomplished by such other state or group of states.

**Article 15: Non-discrimination**

Should either *Party* subsequently conclude a new or amended agreement for peaceful nuclear cooperation with another state or group of states which does not contain one or more of the requirements presently set forth in this Agreement, or should either *Party* agree to implement those requirements in a manner which provides significantly greater practical advantages to a state to which all such requirements apply than this Agreement affords to the other *Party*, the *Party* which has concluded such an agreement will make its best efforts to provide to the other *Party* similar treatment, including, as may be necessary, through amendment of this Agreement.

**Article 16: Suspension and Termination of the Agreement**

1. If either *Party* at any time following the entry into force of this Agreement

   (a) does not comply with the provisions of Articles 3 to 11, or

   (b) terminates, abrogates or materially violates a safeguards agreement with the *Agency*,

the other *Party* shall have the right to cease further co-operation under this Agreement or to suspend or terminate, in whole or in part, this Agreement.

2. If either *Party* at any time following entry into force of this Agreement terminates or abrogates a safeguards agreement with the *Agency* and the safeguards agreement so terminated or abrogated has not been replaced by an equivalent safeguards agreement when appropriate and relevant, the other *Party* shall have the right to require the return in whole or in part of *nuclear material, moderator material* or *equipment* transferred pursuant to this Agreement and *special fissionable material* produced through the use of such items.

3. If Switzerland at any time following entry into force of this Agreement detonates a nuclear explosive device, the United States of America shall have the same rights as specified in paragraph 2. If the United States of America at any time following entry into force of this Agreement detonates a nuclear explosive device with *special fissionable material* transferred pursuant to this Agreement, Switzerland shall have the same rights as specified in paragraph 2.

4. If either *Party* exercises its rights under this Article to require the return of any *nuclear material*, *moderator material* or *equipment*, it shall, after removal from the territory of the other *Party*, reimburse the other *Party* for the fair market value of such *nuclear material*, *moderator material* and *equipment*.

**Article 17: Consultations**

The *Parties* undertake to consult at the request of either *Party* regarding the implementation of this Agreement.

**Article 18: Administrative Arrangement**

The *appropriate authorities* of the *Parties* shall establish an administrative arrangement in order to implement the provisions of this Agreement.

**Article 19: Settlement of disputes**

1. The *Parties* shall seek to resolve any dispute concerning the interpretation and implementation of this Agreement by negotiation.

2. If after genuine efforts of both *Parties* such a dispute cannot be settled by negotiations, it shall be submitted, if both *Parties* agree, to an arbitral tribunal composed of three arbitrators appointed in accordance with the provisions of this Article.

3. Each *Party* shall designate one arbitrator who may be its national, and the two arbitrators so designated shall elect a third, a national of a third state, who shall be the chairman. If within sixty days of the request for arbitration either *Party* has not designated an arbitrator, either *Party* to the dispute may request the president of the International Court of Justice to appoint an arbitrator. The same procedure shall apply if, within sixty days of the designation or appointment of the second arbitrator, the third arbitrator has not been elected.

4. A majority of the members of the arbitral tribunal shall constitute a quorum. All decisions shall be made by majority vote of all the members of the arbitral tribunal. The arbitral procedure shall be fixed by the arbitral tribunal.

5. The decisions of the arbitral tribunal shall be binding on both *Parties* and shall be implemented by them.

**Article 20: Coverage of Items Subject to the Previous Agreement**

1. The provisions of this Agreement shall apply to *nuclear material* subject to the Agreement for Cooperation Between the Government of the United States of America and the Government of Switzerland Concerning Civil Uses of Atomic Energy of 30 December

1965, as amended, and to *moderator material* and *equipment* transferred pursuant to that agreement only to the extent to which they were covered by that agreement.

2. Should the advance, long-term consent given in Article 12 of this Agreement be suspended, as provided in Article 13, *nuclear material* subject to the previous agreement shall, at the option of the *Party* against which the suspension is applied, be regarded during such suspension as subject to this Agreement, but only to the extent covered by the previous agreement.

**Article 21: Amendment of the Agreement**

1. This Agreement may be amended at any time by agreement of the *Parties*.

2. Any such amendment shall enter into force in accordance with the procedures stipulated in Article 22 of this Agreement.

**Article 22: Entry into Force and Duration**

1. This Agreement shall enter into force on the date on which the *Parties* exchange diplomatic notes informing each other that they have complied with all applicable requirements for its entry into force.

2. This Agreement shall remain in force for a period of thirty years and shall continue in force thereafter for additional periods of five years each. Either *Party* may, by giving six months' written notice to the other *Party*, terminate this Agreement at the end of the initial thirty years period or at the end of any subsequent five years period.

3. Notwithstanding the termination or suspension of this Agreement, the rights and obligations pursuant to Articles 3, 4, 5, 7, 12, 13, 14, paragraphs 2 to 4 of Article 16, and the provisions of the Agreed Minute relevant to the implementation of Article 7 shall continue in effect.

4. If a *Party* gives to the other *Party* the written notice provided for in paragraph 2, or if a *Party* suspends or terminates this Agreement pursuant to Article 16 paragraph 1, the *Parties* shall hold consultations as soon as possible but not later than one month afterwards, for the purpose of deciding jointly whether, in addition to those referred to in paragraph 3 of this Article, further rights and obligations arising out of this Agreement, and in particular out of Articles 8, 9, 10 and 11 shall continue in effect.

5. If the *Parties* are unable to reach a joint decision pursuant to paragraph 4,

a) the rights and obligations provided under Articles 8, 9, 10 and 11 shall continue to apply to *nuclear material*, *moderator material* and *equipment* covered by this Agreement pursuant to Article 20 paragraph 1, but only to the extent such rights and obligations also applied to such *nuclear material*, *moderator material* and *equipment* under the previous agreement;

b) the *Parties* shall submit to an arbitral tribunal composed of three arbitrators appointed in accordance with Article 19 paragraph 3 the question whether, notwithstanding the expiration or suspension of the Agreement, rights and obligations in addition to those referred to in paragraph 3, in particular those arising under Articles 8, 9, 10 and 11, shall continue to apply to:

(1) *nuclear material*, *moderator material* and *equipment* transferred pursuant to this Agreement;

(2) *nuclear material* used in or produced through the use of *nuclear material*, *moderator material* and *equipment* transferred pursuant to this Agreement; and

(3) *nuclear material* produced after the entry into force of this Agreement through the use of *nuclear material* that was transferred pursuant to the previous agreement.

The tribunal shall operate in accordance with Article 19 paragraphs 4 and 5 and make its decision on the basis of the application of the rules and principles of international law, and in particular the Vienna Convention on the Law of Treaties.

c) if the arbitral tribunal decides that additional rights and obligations arising under Articles 8, 9, 10 and 11 with respect to *nuclear material*, *moderator material* and *equipment* referred to in subparagraph b) (1), (2) and (3) shall not continue to apply following the suspension or termination of the Agreement, either *Party* shall have the right to require, subject to the procedures provided under Article 16, the return of such *nuclear material*, *moderator material* and *equipment* located in the territory of the other *Party* on the day of termination of this Agreement.

d) until the *Parties* reach a joint decision or the arbitral tribunal renders its decision, this Agreement will remain in force notwithstanding the written notice pursuant to paragraph 2.

6. The *Parties* shall terminate this Agreement not later than the date upon which Switzerland accedes to the European Union. The rights and obligations with respect to *nuclear supply* arising out of this Agreement shall in that event be replaced by those of the agreement between the United States of America and the European Atomic Energy Community.

7. The rights and obligations with respect to other areas of nuclear cooperation shall be the subject of negotiations between the European Atomic Energy Community, the United States of America, and Switzerland in accordance with the provisions of Article 106 of the Euratom Treaty.

In witness whereof the undersigned, being duly authorized thereto by the Government of the United States of America and the Swiss Federal Council respectively, have signed this Agreement.

Done at Berne on this 31st day of October 1997, in duplicate, in the English and French languages, each being equally authentic.

For the Government of the
United States of America

For the Swiss Federal Council

**AGREED MINUTE**

(A) Pursuant to Article 12 of the Agreement for Co-operation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy (hereinafter referred to as the Agreement) signed at Berne on October 31, 1997, the Parties have agreed to the following provisions which are an integral part of the Agreement:

(B) Source material, uranium other than high enriched uranium, moderator material and equipment subject to Article 7 of the Agreement may be retransferred from Switzerland to states or groups of states outside Switzerland where the applicable agreement for co-operation between the United States of America and the state or group of states outside Switzerland permits such transfer, but not for enrichment to twenty percent or greater in the uranium isotope 235. The states or group of states to which such items may be thus transferred are identified in Annex 1 to this Agreed Minute, it being understood that the United States of America shall have the right to add states to this attached list or delete states temporarily or permanently from the list. Such transfers will be subject to the following understandings:

(1) Switzerland shall keep records of such transfers and shall promptly notify the United States of America of each transfer;

(2) prior to each transfer, Switzerland shall confirm to the United States of America that the items will be subject to an agreement for co-operation between the United States of America and the states or group of states receiving the items; the Parties will co-operate to obtain such confirmation on a generic basis from the other states or group of states receiving such items; and

(3) upon their return to Switzerland, such items shall be subject to the Agreement, and Switzerland shall inform the United States of America upon return of any such item to Switzerland with regard to the understanding in paragraph (2) above.

(C) With reference to Article 7 of the Agreement, the United States of America hereby agrees that nuclear material subject to the Agreement may be retransferred subject to the following conditions to states or a group of states for reprocessing, storage or alteration in form or content at the facilities listed in Annex 2 to this Agreed Minute and insofar as the Parties specifically agree, to additional facilities.

(1) Switzerland shall keep records and provide an account to the United States of America annually of the type, quantity, location and form of all nuclear material so retransferred;

(2) prior to any retransfer of nuclear material beyond the territory of Switzerland, Switzerland shall obtain confirmation that the nuclear material to be retransferred will be held by the recipient state or group of states subject to an applicable agreement for peaceful nuclear co-operation with the United States of America;

(3) the listed capacity of a facility on Annex 2 to this Agreed Minute shall be changed to conform to changes in listed capacity of the corresponding facilities on Annex A of the Agreement between the United States of America and the European Atomic Energy Community. The United States of America shall confirm to

Switzerland that such changes have taken place in accordance with paragraphs 6 and 7 of the Agreed Minute of the Agreement between the United States of America and the European Atomic Energy Community.

(D) In the case of irradiated nuclear material subject to the Agreement retransferred by Switzerland, the United States of America hereby agrees to give its consent, under the applicable agreement for co-operation, to the return to Switzerland of nuclear material recovered from that nuclear material so retransferred subject to the following conditions:

(1) any nuclear material returned to Switzerland shall be subject to the Agreement;

(2) any plutonium returned to Switzerland shall only be used in facilities listed in Annex 3 to this Agreed Minute, and

(3) no later than 60 days prior to each shipment of any plutonium to Switzerland, Switzerland shall provide the United States of America with a written notification that shall include a statement advising that measures arranged for the international transport are:

(a) in accordance with the requirements of section 6 of the recommendations published in document INFCIRC/225/Rev. 3 of the International Atomic Energy Agency entitled "The Physical Protection of Nuclear Material" and subsequent revisions as agreed by the Parties for the transport of Category I material, including use of armed escorts or guards as recommended in section 6.2.9.1 of these recommendations, and

(b) consistent with the provisions of the Convention on the Physical Protection of Nuclear Material (published as document INFCIRC/274/Rev. 1 of the International Atomic Energy Agency), as it may be amended and accepted by the Parties.

(E) With reference to Article 11 of the Agreement, the Parties agree that plutonium, uranium 233, and high enriched uranium subject to the Agreement may be stored in facilities listed in Annex 3 or Annex 4 to this Agreed Minute.

(F) Additional facilities in Switzerland may be added to Annexes 3 or 4 to this Agreed Minute on the basis of a notification from Switzerland to the United States of America and receipt by Switzerland from the United States of America of an acknowledgement of such notification. The acknowledgement shall be given no later than thirty days after the receipt of the notification and shall be limited to a statement that the notification has been received. Intended additions to Annexes 3 or 4 to this Agreed Minute shall receive the fullest possible consideration during consultations under the Agreement, which may include discussions on safeguards. The notification shall contain:

(1) the name, type and location of the facility and its existing or planned capacity;

(2) a confirmation that safeguards arrangements have been agreed upon with the International Atomic Energy Agency (IAEA) and that those arrangements will permit the IAEA to exercise fully its rights pursuant to the safeguards arrangements referred to in Article 5 of the Agreement so as to enable the IAEA to meet its objectives and inspection goal;

(3) such non-confidential information as is available to Switzerland on the IAEA safeguards approach; and

(4) a confirmation that physical protection measures as required by Article 4 of the Agreement will be applied.

Switzerland may delete a facility from Annex 3 or 4 to this Agreed Minute by providing to the United States of America a notification containing the facility name and other relevant information available.

(G) The Parties hereby agree that in the event Switzerland wishes to carry out activities within its own jurisdiction in addition to those covered under paragraphs (A) through (F) pursuant to an advance, long term consent as provided for under Article 12, paragraph 1, of the Agreement such consent may be granted by agreement of the Parties.

(H) For purposes of clarifying Article 20, paragraph 1, of the Agreement, the Parties note that, in particular, nuclear material not subject to the previous agreement or to this Agreement and used in or produced through the use of equipment transferred to Switzerland pursuant to the previous agreement shall not be subject to Article 7.

**Annex 1**

1. Australia
2. Canada
3. Czech Republic
4. Hungary
5. Japan
6. Korea, Republic of
7. Norway
8. Poland
9. Slovakia
10. European Atomic Energy Community

**Annex 2**

EURATOM DELINEATED PEACEFUL PROGRAM

| Reprocessing Facilities | | | Capacity[1] |
|---|---|---|---|
| COGEMA - Etablissement de La Hague | La Hague | France | 1600 |
| COGEMA - Usine UP-1 and CEA Service de l'atelier pilote | Marcoule | France | 400 |
| BRITISH NUCLEAR FUELS plc | Sellafield | United Kingdom | 2700 |
| UKAEA Government Division | Dounreay | United Kingdom | ca 5*<br>ca 0,2** |
| Alteration in Form or Content Facilities | | | |
| BELGONUCLEAIRE - Usine de fabrication d'éléments Pu | Mol | Belgium | 35 |
| FBFC INTERNATIONAL - Assemblage des combustibles MOX | Dessel | Belgium | 35 |
| SIEMENS BRENNELEMENTEWERK - Betriebsteil MOX-Verarbeitung | Hanau | Germany | 160 |
| CERCA/Etablissement de Romans | Romans-sur-Isère | France | 0,2 |
| SOCIETE INDUSTRIELLE DE COMBUSTIBLE NUCLEAIRE | Veuvrey | France | 0,05 |
| COGEMA- Complexe de fabrication des combustibles | Cadarache | France | 30 |
| ETABLISSEMENT MELOX | Marcoule | France | 115 |
| UKAEA Government Division | Dounreay | United Kingdom | ca 1 (HEU)<br>ca 1*** |
| BRITISH NUCLEAR FUELS plc | Sellafield | United Kingdom | 128 |

[1] Capacity is expressed in tonnes of heavy metal per year
* = MOX Fuel
** = HEU Fuel
*** = Pu residues

**Annex 3**

SWISS FACILITIES USING PLUTONIUM SUBJECT TO THE AGREEMENT

| | Facilities | Location | Quantity |
|---|---|---|---|
| 1. | Light Water Reactors | | |
| | Beznau I + II (PWR) | Beznau | 13 t* |
| 2. | Research Facilities / Laboratories | | |
| | Paul Scherrer Institute | Villigen | 120 kg Pu |

* = heavy metal / year; max. 2/5 fresh MOX fuel per partial load

**Annex 4**

SWISS FACILITIES USING HIGH ENRICHED URANIUM SUBJECT TO THE AGREEMENT

| | Facilities | Location | Quantity |
|---|---|---|---|
| 1. | Research Reactors | | |
| | AGN 211 P (homogeneous)<br>University of Basel | Basel | 2,2 kg U |
| 2. | Research Facilities / Laboratories | | |
| | Paul Scherrer Institute | Villigen | 16,5 kg U fresh |

THE WHITE HOUSE

WASHINGTON

October 8, 1997

Presidential Determination
No. 98-1

MEMORANDUM FOR THE SECRETARY OF STATE
THE SECRETARY OF ENERGY

SUBJECT: Presidential Determination on the Proposed Agreement for Cooperation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy

I have considered the proposed Agreement for Cooperation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy, along with the views, recommendations, and statements of the interested agencies.

I have determined that the performance of the agreement will promote, and will not constitute an unreasonable risk to, the common defense and security. Pursuant to section 123 b. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2153(b)), I hereby approve the proposed agreement and authorize you to arrange for its execution.

The Secretary of State is authorized and directed to publish this determination in the Federal Register.

William J. Clinton

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY
Washington, D.C. 20451

THE DIRECTOR

MAY 30 1997

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Nuclear Proliferation Assessment Statement for the Proposed Agreement for Cooperation Between the Swiss Federal Council and the Government of the United States of America Concerning Peaceful Uses of Nuclear Energy

As required by section 123 a. of the Atomic Energy Act of 1954, as amended, I am submitting to you an unclassified Nuclear Proliferation Assessment Statement (attached) with respect to the Proposed Agreement for Cooperation Between the Swiss Federal Council and the Government of the United States of America Concerning Peaceful Uses of Nuclear Energy. After providing background information on the nuclear programs and nuclear nonproliferation policies of Switzerland (Part I), this statement examines the applicable legal requirements (Part II), relevant policy issues (Part III), and arrives at certain conclusions (Part IV).

Switzerland is a party to the Nuclear Non-Proliferation Treaty and a strong supporter of other elements of the nuclear nonproliferation regime, including the safeguards system of the International Atomic Energy Agency and the export principles of the Nuclear Suppliers Group. The proposed Agreement will replace an agreement that expired in August 1996, and will place our civil nuclear cooperation with Switzerland on a stable, long-term and predictable basis. The proposed Agreement will also support U.S. nuclear nonproliferation goals by helping to promote continued close cooperation with Switzerland on important issues including ensuring the highest possible standards of security and accountability on plutonium used for civil purposes.

I have concluded that the proposed Agreement meets all statutory requirements. Further, I have reached a favorable assessment of the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the proposed Agreement to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose.

John D. Holum

Attachment:
As stated

# NUCLEAR PROLIFERATION ASSESSMENT STATEMENT

Pursuant to Section 123 a. of the
Atomic Energy Act of 1954, as amended,
with Respect to the Proposed Agreement for
Cooperation Between the Swiss Federal Council
and the Government of the United States of America
Concerning Peaceful Uses of Nuclear Energy

This Nuclear Proliferation Assessment Statement relates to the proposed Agreement for Cooperation Between the Swiss Federal Council and the Government of the United States of America Concerning Peaceful Uses of Nuclear Energy. This agreement for cooperation (which, together with its accompanying Agreed Minute, is hereinafter called the "proposed Agreement") is concurrently being submitted to the President for his authorization for execution.

Section 123 a. of the Atomic Energy Act of 1954, as amended ("Atomic Energy Act"), provides that a Nuclear Proliferation Assessment Statement shall analyze the "consistency of the text of the proposed agreement for cooperation with all the requirements of this Act...and...the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose." With this statutory mandate in mind, this assessment statement begins with background on the nuclear programs and policies of Switzerland (Part I); describes the nature and scope of cooperation contemplated in the proposed Agreement (Part II A), and reviews the applicable substantive requirements of the Nuclear Non-Proliferation Act and the Atomic Energy Act and how they are met by the proposed Agreement (Part II B); discusses other nonproliferation policy issues pertinent to this case (Part III); and then sets forth the net assessment, conclusions, views and recommendations of the United States Arms Control and Disarmament Agency, as contemplated by Section 123 a. of the Atomic Energy Act (Part IV).

# I. NUCLEAR PROGRAMS AND POLICIES OF SWITZERLAND

## A. Switzerland's Civil Nuclear Program

Switzerland, along with many other nations, began to explore the peaceful applications of nuclear energy in the aftermath of World War II. In the 1950s, it acquired its first research reactor. Today, Switzerland has four research reactors and/or critical assemblies that are used for training and research purposes.

Switzerland also decided in the 1960s to acquire power reactors fueled with low enriched uranium for the purpose of generating electricity. At present, Switzerland has five such reactors which produce 40% of its electricity. These reactors were phased in over a 15-year period from 1969 to 1984. A sixth reactor in the planning stages for many years has never been built. In the aftermath of the 1986 accident at the Chernobyl nuclear power station in the former Soviet Union, there was increased debate in Switzerland over the future of nuclear power and in 1990 a referendum was passed that placed a ten- year moratorium on the construction of new nuclear power reactors.

The Swiss decided early in their nuclear power program to manage their spent power reactor fuel by transferring it to the United Kingdom or France for reprocessing. Moreover, some of the plutonium separated from this spent fuel is then shipped to other facilities in the European Atomic Energy Community for plutonium conversion and fuel fabrication (e.g., in Belgium), and ultimately returned to Switzerland for use in its power reactors. Switzerland has no facilities for reprocessing, enrichment, or for the conversion or fabrication of fuel, and thus is totally dependent on foreign fuel cycle services.

## B. U.S.- Switzerland Civil Nuclear Cooperation

The first U.S.- Switzerland civil nuclear cooperation agreement was concluded in 1956. Over the years, the United States has provided significant amounts of assistance to Switzerland's nuclear energy program including fuel and four power reactors. Only one of the U.S.-supplied reactors currently uses low enriched uranium fuel from the United States. An important ongoing aspect of U.S.-Swiss nuclear cooperation concerns the transfer of U.S.- origin spent power reactor fuel from Switzerland to the United Kingdom and France for reprocessing and return of recovered plutonium in the form of fabricated fuel for use in Swiss reactors. Under U.S. civil nuclear cooperation agreements with Switzerland and the European Atomic Energy Community (Euratom), U.S. consent is required for these activities. Current Swiss plans call for the use of plutonium recovered from U.S.-supplied low enriched uranium in three Swiss power reactors.

The previous agreement with Switzerland expired in August 1996. The proposed Agreement would permit a continuation of this 40-year bilateral nuclear relationship. The maintenance of a U.S.-Switzerland agreement for cooperation is important to the commercial interests of both parties. While the U.S. share of Switzerland's nuclear fuel market has decreased, the export revenues are substantial. Moreover, there is a possibility that this trade could expand given the competitiveness of U.S. fuel fabrication services and the acquisition by the United States of large quantities of low enriched uranium derived from highly enriched uranium taken from dismantled Russian nuclear weapons.

The U.S.-Swiss nuclear relationship has experienced occasional difficulties over the past 20 years. In 1977-78, the United States expanded its controls on civil nuclear cooperation with all U.S. trading partners -- particularly in regard to reprocessing and the use of plutonium. The implementation of these laws and policies led to delays in U.S. approvals for the retransfer of Swiss spent fuel to Euratom for reprocessing and for the subsequent return of the plutonium for use in Swiss reactors. U.S. policy toward foreign reprocessing and civil plutonium use over that period has ranged from agnostic to opposition. The combination of these factors created the perception that the United States was seeking to use its national policies to intrude on sovereign Swiss decisions on domestic energy matters and to hinder implementation of commercial nuclear commerce between Switzerland and Euratom. Moreover, these developments caused concern over reliability of supply from the United States and further contributed to problems in the nuclear trading relationship.

These concerns continue to this day and were the principal reason for the delay in concluding the negotiations on the proposed Agreement. In 1993, the Clinton Administration announced that it would not encourage reprocessing and the civil use of plutonium, but that it would honor existing commitments to our nuclear trading partners in Western Europe and Japan. Moreover, the Administration reaffirmed U.S. policy to offer long-term consent arrangements for such countries in exchange for new agreements for cooperation with upgraded controls. This policy led to the successful conclusion of a new agreement for cooperation with Euratom that entered-into-force last year and to the proposed Agreement with Switzerland.

The 1978 Nuclear Non-Proliferation Act (NNPA) requires the Executive Branch to seek to upgrade all existing agreements for cooperation to include the more stringent controls established in that Act. Following passage of the NNPA, Switzerland was not interested in a new agreement since the current agreement did not expire until 1996, and it was reluctant to accept expanded U.S. controls (delays in U.S. approvals for the shipment of Swiss spent fuel to Euratom began in the late 1970s.) Nonetheless, consultations on the terms of a new agreement began soon after enactment of the NNPA and continued throughout the 1980s. Draft texts were provided and views exchanged on U.S. legal requirements. In 1993, formal negotiations began and culminated in the negotiating teams reaching an agreed text in January 1997. In some respects, the proposed Agreement is similar to the recently concluded U.S.-Euratom agreement -- although it is tailored to the Swiss nuclear fuel cycle and thus the advance long-term consent set forth in the Agreed Minute is not as extensive as for Euratom.

The successful conclusion of the negotiations avoided a serious rupture in the U.S.- Swiss nuclear trading partnership while placing this cooperation on a secure, long-term basis and promoting U.S.-Swiss cooperation on nuclear nonproliferation matters.

C. Swiss Nuclear Nonproliferation Policies

Switzerland is a strong proponent of international efforts designed to prevent the further proliferation of nuclear weapons. The preamble of the proposed Agreement reaffirms the importance that the United States and Switzerland place on key elements of the regime including the NPT, IAEA safeguards, the Physical Protection Convention, the Nuclear Suppliers Group, and measures to avoid the risk of proliferation related to the use of plutonium in civil applications.

1. NPT

Switzerland signed the NPT in 1969, noting at the time that it would not submit the Treaty to its Parliament for approval until Switzerland "considers that a sufficient degree of universality has been achieved." In 1977, Switzerland took that step by depositing its instrument of ratification; and then concluded an NPT safeguards agreement with the IAEA covering all Swiss nuclear activities in 1978.

Switzerland has regularly emphasized the importance of Article IV of the NPT which obligates all NPT parties "to facilitate ... the fullest possible exchange ..." of nuclear equipment and material for peaceful purposes. The United States has also stressed the importance of Article IV and has fulfilled its obligations pursuant to that Article through an extensive network of bilateral and multilateral cooperative activities. The proposed Agreement is a further demonstration of the U.S. commitment to its Article IV obligations and will ensure a beneficial and stable U.S.-Swiss civil nuclear relationship for the foreseeable future.

While the United States and Switzerland have generally been in agreement with regard to NPT issues, there was a difference of view on the question of NPT extension leading up to the 1995 NPT Review and Extension Conference. The U.S. objective was to gradually build support for indefinite NPT extension and go into the Conference with as large a majority as possible in favor of this position. Several attempts were made by U.S. officials in the year leading to the Conference to persuade Switzerland to support the U.S. position. The Swiss demurred, however, apparently because of long-standing concerns that the NPT discriminates in favor of the nuclear weapon states. The Swiss finally decided about a week before the Conference to support indefinite extension -- the last European state to do so. While privately disappointed that the decision had not come earlier, the United States welcomed the Swiss announcement as it added further momentum to what, by that time, was already a majority of NPT parties in favor of indefinite extension.

Recently, the Swiss Government commissioned a military historian to prepare a report on

the debate and planning within Switzerland related to the acquisition of nuclear weapons. This report was published in April 1996, and provides insight into how a country with Switzerland's history can arrive at a decision that its security is better enhanced through adherence to the NPT than through the acquisition of nuclear weapons.

This report indicates that Switzerland -- a neutral nation without the protection of an alliance -- decided in the 1950s to study the utility of acquiring nuclear weapons in the face of possible future threats to its security. While the issue was debated publicly within Switzerland, the Government conducted studies in the 1950s and 1960s of what resources and force sizes would be necessary in the event a decision were made to acquire nuclear weapons. The fears prompting these studies were, according to this report, the chance that the Federal Republic of Germany would acquire nuclear weapons and concerns about Soviet-supported aggression.

The report goes on to note that international diplomatic efforts in favor of a treaty prohibiting further nuclear proliferation were gaining momentum in the 1960s, and when the NPT was opened for signature in 1968 it appeared that most in Switzerland did not favor the nuclear option -- believing that it would be too great a burden and not offer enough protection. Nonetheless, Swiss ratification of the NPT was not a foregone conclusion even after Switzerland signed the Treaty in 1969. Any future Swiss decision to ratify the NPT was clearly dependent on whether other key nations joined the Treaty. Even after NPT signature by Switzerland, theoretical studies on nuclear weapons acquisition continued under a Working Committee for Nuclear Matters. Switzerland finally ratified in 1977 after Italy, Belgium, the Federal Republic Germany, and the Netherlands had taken this step in 1975. The Working Committee was not disbanded, however, until 1988.

From a review of the military historian's report, it appears that the activities of the Working Committee were confined to a study of nuclear weapons-related questions from a purely theoretical perspective. The Swiss Government was queried on this point in the context of ACDA's preparation of this Nuclear Proliferation Assessment Statement. The Swiss Foreign Ministry confirmed that this research was limited to paper studies and calculations.

2. IAEA Safeguards

Switzerland was a founding member of the IAEA in 1957, and has played a key role over the years in strengthening this important international institution. The Unites States considers the IAEA safeguards system to be an essential tool in promoting U.S. national security interests, and is working closely with Switzerland and other countries in the IAEA's ongoing effort to strengthen its safeguards system. The first phase of this safeguards upgrade was agreed by the IAEA Board of Governors in June 1995, when the IAEA Board of Governors, including at that time Switzerland, approved the IAEA's plan to begin implementation of a set of strengthening measures already within its existing authority. The second phase involved the negotiation of a model Protocol for NPT safeguards agreements in order to provide the IAEA with the authority to obtain additional information and access in states with comprehensive IAEA safeguards

agreements. The committee of IAEA member-states charged with these negotiations completed its task successfully on April 2, 1997, and the model Protocol was adopted by the IAEA Board of Governors in mid-May 1997.

Switzerland has historically been a strong supporter of IAEA safeguards and this leadership role has been reflected by the fact that three of the six officials who have served as Deputy Director General of the IAEA for Safeguards since the Agency's founding in 1957 have been Swiss, including the current incumbent. During the recent negotiations on the NPT model Protocol, Swiss officials emphasized the utility of measures like no-notice inspections and environmental monitoring in detecting undeclared activities, while encouraging more efficiencies in the application of safeguards on certain declared facilities like light water power reactors. Like several other NPT states with major civil nuclear programs, Swiss authorities were sensitive to the impact of these measures on their nuclear industry; and they frequently questioned the value of certain expanded reporting requirements. Nonetheless, Switzerland understands the importance of a credible IAEA safeguard system and played a constructive role in developing the text of the model Protocol.

3. Nuclear Export Controls

Switzerland has a large nuclear industry capable of manufacturing specially designed nuclear equipment and dual-use items such as precision machine tools. Swiss firms, along with those in Germany, the United Kingdom, and the United States, have been the prime target for nations seeking equipment for a nuclear weapons program. Switzerland was one of the first suppliers to emphasize the importance of multilateral cooperation in combating the efforts of proliferants, and Swiss officials consult routinely and in good faith with U.S. officials in dealing with individual exports of concern. New Swiss ordinances tightening nuclear export controls have been enacted twice since 1990, and further changes covering dual-use goods and war materials passed both houses of Parliament in December 1996. Swiss officials have been prepared to use informal approaches (e.g., jawboning) to halt exports of concern when legal means are unavailable. Significantly, the new law grants broad authority to Swiss officials and implementing regulations are expected to include a "catch-all" clause designed to require licensing for unlisted items in certain circumstances.

Switzerland helped to create the Zangger (NPT Exporters) Committee in 1971 when it became clear that a shared interpretation of Article III.2 of the NPT would be desirable in order to ensure fair commercial competition among nuclear suppliers and to avoid proliferant states playing supplier states off against each other. (Article III.2 requires the application of IAEA safeguards on exports to non-nuclear-weapon states of nuclear material and certain "especially designed or prepared" equipment.) This Committee was chaired by a senior Swiss official (Claude Zangger) from its inception until 1990, and is officially known as the Zangger Committee. The Committee published its first understandings in 1974 and has updated its control lists many times over the years.

Concern over Pakistani procurement of centrifuge enrichment equipment from the United States, Switzerland, and other suppliers in the late 1970s, led to the Zangger Committee's first comprehensive trigger list upgrade exercise which was published in 1984. This exercise resulted in part from intensive U.S.-Swiss consultations in 1980 regarding Pakistani procurement efforts directed at Swiss firms. U.S.-Swiss cooperation in the Committee is generally good, although we have differed occasionally on the interpretation of Article III.2 with the Swiss adopting a more restrictive approach to nuclear equipment that should be considered "especially designed or prepared."

Switzerland was not one of the original seven members of the Nuclear Suppliers Group (NSG), but was among the second tranche of countries that joined prior to the publishing of the NSG Guidelines in 1978. Switzerland has remained one of the most active members of the NSG, which has now grown to 34 members. Swiss Federal energy official Professor Alec Baer was chairman of the NSG in 1993. U.S.-Swiss cooperation on NSG issues has been very good, although Switzerland -- along with the United Kingdom, France and several others -- was one of the last supplier states to adopt a national policy requiring full-scope safeguards as a condition of nuclear supply (October 1991). Switzerland and the United States share the same view with regard to the NSG provisions that encourage restraint in the transfer of enrichment and reprocessing equipment and technology, and in the transfer of all NSG-controlled items to states with unsafeguarded nuclear activities such as India and Pakistan. While Switzerland does not have in place a comprehensive trade embargo against Iran, it has exercised caution on nuclear-related exports and is not assisting Iran's nuclear program.

Iraq's successful effort to acquire the infrastructure for nuclear weapons was not revealed until after the Gulf War when the IAEA was able to obtain information under enhanced inspection powers granted by the U.N. Security Council. It became clear that some of this infrastructure had been acquired from foreign firms, including from the United States, Switzerland, and the Federal Republic of Germany. This discovery led the NSG to adopt in 1992 a control regime over nuclear-related dual-use equipment, material and technology. Switzerland and the United States worked closely in the 1991-92 time frame to help create this new regime.

4. Other Issues

The 1980 Convention on the Physical Protection of Nuclear Material establishes important standards for the protection of nuclear material in international transport, and in domestic use and storage. Switzerland adhered to that Convention in 1987 which demonstrates its commitment to effective measures in this area. Support for such international cooperation is particularly important for nuclear supplier states like Switzerland which are involved in the transport and use of plutonium for civil purposes.

With regard to the use of weapons-usable material in civil applications, Swiss officials have worked with their counterparts from the United States, United Kingdom, and other key states to develop guidelines and principles for the management of civil plutonium. Also,

I - 7

Switzerland shut down its only research reactor using HEU fuel.

As a member of the Conference on Disarmament, Switzerland supported the negotiation of the Comprehensive Test Ban Treaty and signed the Treaty in New York on September 24, 1996 -- the date it was opened for signature. Switzerland also supports the beginning of negotiations at the CD on a Fissile Material Cutoff Treaty. Switzerland is a party to the Biological Weapons Convention, the Chemical Weapons Convention, the Missile Technology Control Regime, and the Australia Group (which regulates CBW-related exports).

## II. COMPLIANCE WITH STATUTORY REQUIREMENTS

As will be shown below, the proposed Agreement between the Swiss Federal Council and the Government of the United States of America meets the applicable requirements of the law, specifically the Atomic Energy Act, (hereinafter the Act) and the Nuclear Non-Proliferation Act (hereinafter the NNPA). Section 123 a. of the Act, as amended by Section 401 of the NNPA, requires new or amended agreements for cooperation to include the terms, conditions, duration, nature and scope of the cooperation.

The nature and scope of the cooperation authorized by the proposed Agreement is described in Section A below.

The most pertinent terms and conditions of the cooperation authorized by the proposed Agreement are discussed in Sections B, C, D, E, and F below.

The duration of the proposed Agreement is thirty (30) years from the date of its entry into force, and the proposed Agreement shall continue in force thereafter for additional periods of five years each. Either Party may terminate the proposed Agreement at the end of the initial thirty year period or at the end of any subsequent five year period by giving six months' written notice to the other Party.

### A. Nature and Scope of Cooperation

Article 2 of the proposed Agreement establishes the procedure by which nuclear material, moderator material and equipment transferred between the Parties will become subject, or cease to be subject, to the Agreement. Article 2 (1) provides that such transfers become subject to the Agreement upon confirmation by the recipient Party to the supplier Party. Article 2, paragraphs (3) and (4) provide that such items shall remain subject to the Agreement until they have been retransferred beyond the jurisdiction of the receiving Party, or until the Parties otherwise agree -- such as by determining that the nuclear material is no longer usable for any nuclear activity relevant to safeguards or has become practically irrecoverable, or that equipment is no longer usable for nuclear purposes. Article 2 (6) establishes certain de minimis quantities of nuclear material that may be transferred outside the proposed Agreement.

Article 3 of the proposed Agreement requires that nuclear material, moderator material and equipment transferred pursuant to the proposed Agreement, as well as special nuclear material used in or produced through the use of such items, shall not be used for any nuclear explosive device, for research on or development of any nuclear explosive device or for any military purpose.

The proposed Agreement does not provide for the transfer of Restricted Data, sensitive nuclear technology, sensitive nuclear facilities, or major critical components of such facilities. Sensitive nuclear technology/facilities refer to plants for reprocessing, enrichment or heavy water production.

B. Specific Requirements for Agreements for Cooperation

Section 123 a. of the Atomic Energy Act sets forth nine specific requirements that must be met in an agreement for cooperation. These are set forth below, with a description and explanation of the provisions of the proposed Agreement that address each requirement.

(1) Duration of Safeguards

Subparagraph (1) of Section 123 a. of the Act requires:

> a guaranty by the cooperating party that safeguards as set forth in the agreement for cooperation will be maintained with respect to all nuclear materials and equipment transferred pursuant thereto, and with respect to all special nuclear material used in or produced through the use of such nuclear materials and equipment, so long as the material or equipment remains under the jurisdiction or control of the cooperating party, irrespective of the duration of other provisions in the agreement or whether the agreement is terminated or suspended for any reason.

This provision is designed to require the application of safeguards to items subject to the proposed Agreement and to provide protection against any termination of such safeguards. Article 5 of the proposed Agreement satisfies the requirements of the Act for the application of safeguards. Article 22 (3) of the proposed Agreement satisfies the requirement of the Act that the safeguards be applied in perpetuity.

Article 5 (1) of the proposed Agreement provides that nuclear material transferred to Switzerland pursuant to the Agreement and nuclear material used in or produced through the use of any nuclear material, moderator material or equipment, so transferred, shall be subject to the safeguards agreement between Switzerland and the IAEA as required pursuant to Swiss adherence to the Non-Proliferation Treaty (NPT). Similarly, Article 5 (2) requires that items transferred to the United States shall be subject to the U.S.-IAEA safeguards agreement.

Article 5 (3) of the proposed Agreement provides further assurance of the continued applicability of safeguards by requiring that in the event that either of these IAEA safeguards agreements are not being applied, the Parties shall enter into arrangements with the IAEA for the application of safeguards which provide (i) for effectiveness equivalent to that provided by the safeguards agreement not being applied and (ii) for coverage required by Articles 5 (1) or 5 (2),

as the case may be. If either Party considers the IAEA unable to apply such safeguards, safeguards shall be applied under U.S.-Swiss bilateral arrangements.

As required by the Act, the safeguards rights contained in the proposed Agreement continue in effect even if the Agreement is terminated or suspended for any reason and irrespective of the duration of the other provisions of the Agreement. Article 22 (3) provides:

> Notwithstanding the termination or suspension of this Agreement, the rights and obligations pursuant to Articles 3,4,5, 7, 12,13,14, paragraphs 2 to 4 of Article 16, and the provisions of the Agreed Minute relevant to implementation of Article 7 shall continue in effect.

(2) Full-Scope Safeguards

Subparagraph (2) of Section 123 a. of the Act requires:

> in the case of non-nuclear-weapon states, a requirement, as a condition of continued United States nuclear supply under the agreement for cooperation, that IAEA safeguards be maintained with respect to all nuclear materials in all peaceful nuclear activities within the territory of such state, under its jurisdiction, or carried out under its control anywhere.

Article 5 (1) satisfies this requirement by providing that safeguards required under the proposed Agreement for Switzerland are those applied pursuant to the NPT safeguards agreement between Switzerland and the IAEA. The NPT requires IAEA safeguards on all source and special fissionable material in all peaceful nuclear activities in a non-nuclear weapon state (i.e. full-scope safeguards). Thus the NPT safeguards agreement between Switzerland and the IAEA satisfies the requirement of the Act that full-scope IAEA safeguards be maintained.

(3) No Military or Explosive Use

Subparagraph (3) of Section 123 a. of the Act requires:

> ...a guaranty by the cooperating party that no nuclear materials and equipment or sensitive nuclear technology to be transferred pursuant to such agreement, and no special nuclear material produced through the use of any nuclear materials and equipment or sensitive nuclear technology transferred pursuant to such agreement, will be used for any nuclear explosive device, or for research on or development of any nuclear explosive device, or for any other military purpose.

Article 3 of the proposed Agreement satisfies this requirement by requiring that:

> No nuclear material, moderator material and equipment transferred pursuant to this Agreement and no nuclear material used in or produced through the use of any such nuclear material, moderator material or equipment shall be used for any nuclear explosive device, for research on any nuclear explosive device or development of any nuclear explosive device, or for any military purpose.

Article 22 (3) provides that the peaceful use requirement of Article 3 continues in effect even in the event of termination or suspension of the Agreement. Further, as the transfer of sensitive nuclear technology is not provided for by the proposed Agreement, there is no provision relating to the use of sensitive nuclear technology for peaceful purposes only.

(4) Right of Return

Subparagraph (4) of Section 123 a. of the Act requires:

> ...a stipulation that the United States shall have the right to require the return of any nuclear materials and equipment transferred pursuant thereto and any special nuclear material produced through the use thereof if the cooperating party detonates a nuclear explosive device or terminates or abrogates an agreement providing for IAEA safeguards.

Paragraphs (2) and (3) of Article 16 of the proposed Agreement meet this requirement by providing:

> 2. If either Party at any time following entry into force of this Agreement terminates or abrogates a safeguards agreement with the Agency and the safeguards agreement so terminated or abrogated has not been replaced by an equivalent safeguards agreement when appropriate and relevant, the other Party shall have the right to require the return in whole or in part of nuclear material, moderator material or equipment transferred pursuant to this Agreement and special fissionable material produced through the use of such items.
>
> 3. If Switzerland at any time following entry into force of this Agreement detonates a nuclear explosive device, the United States shall have the same rights as specified in paragraph 2. If the United States of America at any time following entry into force of this Agreement detonates a nuclear explosive device with special fissionable material transferred pursuant to this Agreement, Switzerland shall have the same rights as specified in

paragraph 2.

As this proposed Agreement is reciprocal, these paragraphs also provide Switzerland with a right of return if the United States engages in certain actions.

As is the case with other agreements for cooperation that contain the right of return as required by the Act, Article 16 (4) provides that should the right of return be exercised by a Party, the other Party shall be compensated promptly for the fair market value of the items returned and for the costs incurred as a consequence of such removal.

(5) Retransfer

Subparagraph (5) of Section 123 a. of the Act requires:

> a guaranty by the cooperating party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and...any production or utilization facility transferred pursuant to the agreement for cooperation or any special nuclear material produced through the use of any such facility or through the use of any material transferred pursuant to the agreement, will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States.

Retransfers to third countries may be accomplished in accordance with the provisions of Article 7 of the Agreement and of the Agreed Minute, including paragraphs (B) and (C). These provisions satisfy the requirements of sections 123 a. and 109 of the Act as discussed below.

Article 7 states:

> No nuclear material, moderator material or equipment transferred pursuant to this Agreement and no special fissionable material produced through the use of any nuclear material, moderator material or equipment so transferred shall be retransferred, unless the Parties agree, beyond the territorial jurisdiction of the Party.

Nuclear material and moderator material may be retransferred only if the Parties agree. This satisfies the requirement of the Act that material transferred pursuant to the Agreement not be retransferred without U.S. consent.

Article 7 provides that equipment transferred pursuant to the Agreement can be retransferred only if the Parties agree. The definition of "equipment" in Article 1 (c) includes any reactor (i.e., a production or utilization facility) that can be supplied under the Agreement, and

includes any other item if designated jointly by the appropriate authorities of the Parties. A production facility that is not a reactor would have to be designated as equipment before it could be supplied under the Agreement. Therefore, this provision satisfies the requirement of the Act that any production or utilization facility transferred pursuant to the Agreement not be retransferred without U.S. consent.

Similarly, even though the proposed Agreement uses the term "equipment" rather than "production or utilization facility", taking into account the definitions of the terms used, these provisions of Article 7 satisfy the requirement of the Act that any special nuclear material produced by a production or utilization facility transferred pursuant to the proposed Agreement, or through use of material transferred pursuant to the proposed Agreement, not be retransferred without U.S. consent.

Article 7 does not refer to the retransfer of Restricted Data because, as noted above, the Agreement does not allow the transfer of Restricted Data to the Community.

The exercise of this particular U.S. control with respect to special fissionable material produced through the use of nuclear material and/or non-nuclear material transferred pursuant to the Agreement, when such nuclear material and/or non-nuclear material is used in equipment not so transferred, is limited by the rule of proportionality set out in Article 2 (2). Article 2 (2) provides that under this rule the requirements pertaining to retransfer shall be applied to that proportion of special fissionable material produced that represents the ratio of transferred nuclear material and/or non-nuclear material used in the production of the special fissionable material to the total amount of nuclear material and/or non-nuclear material so used. This rule of proportionality, in effect, serves to define the term "produced through the use of" -- a term that is not defined in the Act or the NNPA -- in a reasonable way that corresponds to accepted practice of nuclear facility operators. This rule of proportionality has been embodied in all U.S. agreements for cooperation concluded since enactment of the NNPA.

As noted above, Article 7 contains the U.S. approval for the retransfer of nuclear material and equipment required by the Act. For all retransfers pursuant to Article 7, the nuclear material or equipment would remain subject to a U.S. agreement for cooperation which, inter alia, means that there could be no further retransfer without U.S. approval.

Article 12 of the proposed Agreement specifies that the requirements for inter alia Article 7 shall be satisfied "on a long-term predictable and reliable basis"; and that implementation of this undertaking is contained in the Agreed Minute. Paragraphs (B) and (C) of the Agreed Minute set out the procedures that must be followed for certain retransfers that will have been approved in advance by the United States when the proposed Agreement enters into force. Article 13 makes clear that the United States has the right to suspend or terminate this long-term consent on nuclear proliferation or other national security grounds.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY
Washington, D.C. 20451

THE DIRECTOR

MAY 30 1997

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Views and Recommendations on the Proposed Agreement for Cooperation Between the Swiss Federal Council and the Government of the United States of America Concerning Peaceful Uses of Nuclear Energy

As required by section 123 a. of the Atomic Energy Act, as amended, I am submitting to you my views and recommendation on the Proposed Agreement for Cooperation Between the Swiss Federal Council and the Government of the United States of America Concerning Peaceful Uses of Nuclear Energy. The U.S. Arms Control and Disarmament Agency participated in the development and negotiation of this agreement. The Nuclear Proliferation Assessment Statement required by the Act is being transmitted to you separately. I support the proposed Agreement and cite the following reasons:

First, the proposed Agreement (30 years duration) establishes a predictable and long-term framework for a continuation of civil nuclear commerce between the United States and Switzerland. We expect the success of the negotiations and entry-into-force of the proposed Agreement will further enhance our close cooperation with Switzerland on critical nuclear nonproliferation goals.

Second, the proposed Agreement meets all the requirements of the Atomic Energy Act, as amended, and thus includes the best possible safeguards and controls to ensure against any possible misuse of U.S. supply under the agreement.

Third, while granting long-term consent in the proposed Agreement for the transfer of spent fuel to Euratom for reprocessing and for the storage and use of plutonium fuel in Switzerland, U.S. nuclear nonproliferation and other national security interests are protected through the provision for suspension of these consent rights. Moreover, expanding the scope of the long-term consent in the proposed Agreement to other fuel cycle activities, such as reprocessing, would require a future U.S. approval under section 131 of the Atomic Energy Act.

Fourth, the proposed Agreement will expand U.S. controls over the storage and use of U.S.-obligated plutonium in Switzerland and will help to maintain the highest possible standards for the safety and security of highly enriched uranium and plutonium.

Fifth, Switzerland's participation in and commitment to the nuclear nonproliferation regime demonstrates its strong support for preventing the further spread of nuclear weapons. While Swiss leaders considered the acquisition of nuclear weapons in the 1950s and 1960s, this approach was firmly rejected in favor of ensuring Switzerland's security through adherence to the Nuclear Non-Proliferation Treaty (NPT). Moreover, Switzerland has taken a responsible approach to the need for strengthened nuclear export controls, and has taken major strides in recent years to thwart procurement by countries seeking nuclear weapons.

Sixth, Switzerland's commitment to the NPT, its acceptance of strengthened International Atomic Energy Agency safeguards and physical protection measures, and the bilateral guarantees and controls in the proposed Agreement, offer a high degree of confidence in the reliability of the peaceful use assurances offered by Switzerland in the proposed Agreement. Moreover, the dissolution of the Soviet Union and the absence of a significant threat to the security of Western Europe make it highly unlikely that Switzerland would reconsider its commitment to the NPT in the foreseeable future.

Seventh, the proposed Agreement underlines U.S. readiness to carry out its obligation under Article IV of the NPT to engage in civil nuclear cooperation with other NPT parties in a manner that furthers the objectives of the Treaty.

In the context of successfully concluding negotiations the United States exercised maximum flexibility within its statutory requirements which led to compromises on two issues that are found in but one other agreement for cooperation concluded since enactment of the 1978 Nuclear Non-Proliferation Act. We view this result as wholly justifiable under the circumstances, but believe that the manner in which these issues were resolved should not be considered a precedent for negotiating any other new agreements for cooperation.

The proposed Agreement should serve to strengthen cooperation with Switzerland on ensuring maximum transparency and security of civil plutonium stockpiles. Recognizing the proliferation and security risks associated with stockpiles of separated plutonium, it is important that the United States and Switzerland continue to support the multilateral exercise aimed at establishing voluntary guidelines, inter alia, to limit and ultimately reduce these stockpiles.

In conclusion, the entry into force of the Agreement will serve important foreign policy and national security interests of the United States with particular emphasis on civil nuclear cooperation and nonproliferation matters. I recommend that you approve the proposed Agreement; that you determine that the performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security; and that you authorize the signature of the proposed Agreement.

John D. Holum

Paragraph (B) authorizes the retransfer of source material, low enriched uranium, moderator material and equipment from Switzerland to certain nuclear cooperating partners of the United States. These states and groups of states are listed in Annex 1 to the Agreed Minute, with the United States having the unilateral right to add or delete states from this list.

Paragraph (C) authorizes the retransfer of nuclear material from Switzerland to states or groups of states for reprocessing or alteration in form or content in facilities located in such third states and listed in Annex 2. This provision is similar to that found in the U.S. agreements for cooperation with Japan and Norway, and in former agreements with Finland and Sweden; it permits Swiss utilities to transfer spent fuel to the United Kingdom or France for reprocessing and subsequent conversion and fabrication of the plutonium into fuel. The facilities listed in Annex 2 of the Agreed Minute correspond to those Euratom facilities for which the United States granted long-term consent to reprocessing and alteration in form or content in the new U.S.-Euratom agreement for cooperation which entered into force in April 1996. The addition of facilities to Annex 2, whether such facilities were located in Euratom or another state having an agreement for cooperation with the United States, would require further agreement of the Parties and be subject to U.S. approval under Section 131 of the Act, which includes Congressional review.

Paragraph (D) of the Agreed Minute stipulates that the United States shall give its consent, under the appropriate agreement for cooperation with a third country, to the return to Switzerland of any nuclear material recovered from irradiated nuclear material that may have been transferred from Switzerland to the third country (e.g. pursuant to the procedures in paragraph (C)) . The United States is prepared to offer a long-term consent under the U.S. - Euratom agreement for cooperation for the return of plutonium to Switzerland recovered from U.S. - obligated spent fuel transferred from Switzerland to Euratom for reprocessing. In that regard, Switzerland must provide to the United States, no later than 60 days prior to each such shipment of plutonium, a written notification advising that the measures for the international transport are in accordance with international standards on the protection of nuclear material.

Under U.S. law, approvals for retransfers may be processed in accordance with the subsequent arrangement procedures set forth in section 131 of the Act. In addition, the law allows such approvals to be given in the agreement for cooperation itself (see discussion later in this section), and more recent U.S. agreements, including those with Euratom, Japan, Norway, and previous agreements with Finland and Sweden, have contained such approvals. The procedural requirements and substantive findings applicable to an agreement for cooperation are more stringent than those applicable to subsequent arrangements and, as explained in greater detail below, this will ensure that including a long-term approval for retransfers in the Agreement will be under conditions that will satisfy all pertinent provisions of the Act.

Paragraph (G) of the Agreed Minute also provides that retransfers to third countries not included in paragraphs (B) or (C) may be considered on a case-by-case basis. This provision

ensures that other retransfers to third countries that might not be appropriate for inclusion on any of the lists would be permissible if agreed by the Parties after case-by-case consideration. The subsequent arrangement procedures of section 131 of the Act would be used by the United States to consider any such retransfer requests.

The requirement that Switzerland not retransfer material or equipment to unauthorized persons is satisfied under Article 2 (1), which authorizes cooperation to take place only between the Parties and authorized persons in the respective territories of the Parties. Each Party would identify those persons in its territory authorized to engage in designated areas of nuclear cooperation under the agreement. Cooperation under the agreement may not take place if it involves a "person" not so authorized.

The retransfer consent in Article 7 is subject to the proportionality provision in Article 2 (2).

(6) Physical Security

Subparagraph (6) of Section 123 a. of the Act requires:

> a guaranty by the cooperating party that adequate physical security will be maintained with respect to any nuclear material transferred pursuant to such agreement and with respect to any special nuclear material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to such agreement.

Article 4 of the proposed Agreement satisfies this requirement by requiring that:

> Each Party shall take such measures as are necessary to ensure, within its jurisdiction, adequate physical protection of nuclear material transferred pursuant to this Agreement and any nuclear material used in or produced through the use of nuclear material, moderator material or equipment transferred pursuant to this Agreement and apply criteria in accordance with levels of physical protection at least equivalent to those set out in the Recommendations.

Article 1 (i) states:

> Recommendations means the recommendations published in document INFCIRC/225/Rev. 3 of the [International Atomic Energy] Agency entitled "the Physical Protection of Nuclear Material" and subsequent revisions as agreed by the Parties.

With respect to the meaning of "adequate," Section 127 (3) of the Act provides that

physical security measures shall be deemed adequate if they provide a level of protection equivalent to that required by regulations promulgated by the NRC establishing levels of physical protection. (See NNPA Section 304 (d); 10 CFR 110.43.)

Article 4 and Article 1 (i) provide that physical security measures shall be applied so as to satisfy the standards accepted by the United States and the international community as set out in IAEA Information Circular 225, Revision 3, that concern physical protection measures for nuclear transfers and for the application of physical protection measures at all other times in the nuclear fuel cycle. Therefore, the standards of physical security that must be met under this Agreement are those that are accepted and implemented world-wide as adequate. These standards are also equivalent to those required by U.S. Nuclear Regulatory Commission (NRC) regulation. The Agreement also is clear that continued compliance with the most current international standards shall be required under this Agreement as reference is made in Article 1 (i) to any subsequent revision of IAEA Information Circular 225 as agreed by the Parties. So the latest version of internationally accepted standards will continue to be applied during the life of the Agreement. Further, Article 22 (3) provides that even if the Agreement is terminated or suspended the obligations of Article 4 shall continue in effect. In light of the discussion above, the physical security provisions of this Agreement satisfy the requirements of section 123 a.(6) of the Act.

(7) Reprocessing, Enrichment or Other Alteration

Subparagraph (7) of Section 123 a. of the Act requires:

> ...a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the agreement for cooperation will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States.

The requirement for prior approval of the United States for reprocessing is met by Article 9 which states:

> Nuclear material transferred pursuant to this Agreement or used in produced through the use of nuclear material, moderator material or equipment so transferred shall not be reprocessed unless the Parties agree.

The requirement for prior approval of the United States for enrichment is met by Article 8 which states:

> Uranium transferred pursuant to this Agreement or used in or produced through the use of equipment so transferred shall not be enriched by a Party to twenty percent or more in the isotope U-235 unless the Parties agree.

This provision allows the enrichment of uranium up to 20 percent in the isotope 235, but requires that enrichment to twenty percent or greater be subject to mutual agreement of the Parties. Such a future agreement would be subject to the subsequent arrangement procedures of section 131 of the Act. The approval for enrichment up to twenty percent without further U.S. action is authorized in section 402 (a) of the NNPA (see below).

The requirement for prior approval of the United States for alteration in form or content is met by Article 10 which states:

> No plutonium, uranium 233, high enriched uranium or irradiated nuclear material transferred pursuant to this Agreement or used in or produced through the use of any nuclear material, moderator material or equipment so transferred shall be altered in form or content unless the Parties agreement.

For the purpose of this Agreement, alteration in form or content is defined in Article 1(a) as the conversion or fabrication of fuel containing plutonium, high enriched uranium, or uranium 233; and does not include post irradiation examination of fuel elements involving chemical separation, disassembly or reassembly of fuel elements, irradiation, reprocessing or enrichment. Consent to reprocessing and enrichment are handled separately, as noted above. The United States has always excluded irradiation of fuel containing plutonium, U-233, or high enriched uranium as requiring a separate U.S. consent under Section 123 (7), as the consent for the use of such U.S. obligated nuclear material in a reactor is already provided for either through the approval of an export license or of a subsequent arrangement involving consent over storage and use at a reactor site. Activities involving the assembly or post-irradiation examination of fuel elements which alter the physical or chemical composition of U.S.-obligated nuclear material would be covered under the alteration in form or content activities described in Section 123 (7). By excluding such activities from the alteration in form or content definition, the proposed Agreement permits these operations. Such advance consent was also provided in the 1996 U.S.-Euratom agreement for cooperation and is a reasonable accommodation for states with good nonproliferation policies having advanced nuclear programs which include routine testing and evaluation of irradiated fuel elements.

Article 12 of the proposed Agreement states that the "Parties shall satisfy" the requirements of Article 8 (enrichment), Article 9 (reprocessing), and Article 10 (alteration in form or content), on a long-term predictable and reliable basis and that any such undertaking is set forth in the Agreed Minute. However, the Agreed Minute does not include any such long-term arrangements related to Articles 8,9, or 10 as Switzerland's nuclear fuel cycle presently does not involve reprocessing or the conversion or fabrication of fuel containing plutonium, high

enriched uranium, or uranium 233. Article 12 does not prejudice the scope or terms of any long-term consent should Switzerland seek such an approval in the future. Any such request would be subject to a future decision under the procedures of Section 131 of the Act which includes a Congressional review period. As with the long-term approval for retransfers set forth above, any such future approval would be subject to the provisions of Article 13 which accord the United States the unilateral right to suspend or terminate the consent on certain national security and/or nonproliferation grounds.

The controls in Articles 8,9 and 10 are subject to the proportionality provision in Article 2 (2).

(8) Storage

Subparagraph (8) of Section 123 a. of the Act requires:

> ...a guaranty by the cooperating party that no plutonium, no uranium 233, and no uranium enriched to greater than twenty percent in the isotope 235, transferred pursuant to the agreement for cooperation, or recovered from any source or special nuclear material so transferred or from any source or special nuclear material used in any production facility or utilization facility transferred pursuant to the agreement for cooperation, will be stored in any facility that has not been approved in advance by the United States....

The requirement for prior approval by the United States over storage of plutonium, uranium-233 and high enriched uranium is met by Article 11 as follows:

> The following shall be stored only in a facility to which the Parties agree:
>
> i. plutonium, uranium 233 and high enriched uranium (except as contained in irradiated fuel elements) transferred pursuant to this Agreement;
>
> ii. plutonium, uranium 233 and high enriched uranium recovered from nuclear material transferred pursuant to this Agreement;
>
> iii. plutonium, uranium 233 and high enriched uranium recovered from nuclear material used in equipment transferred pursuant to this Agreement.

The material covered by this provision of the proposed Agreement is as required by the Act. As noted earlier, "equipment" is defined in the proposed Agreement to effectively include any "production facility" or "utilization facility" subject to the Agreement. Therefore, the phrase "used in equipment" in Article 11 iii., means essentially the same thing as "used in any

production or utilization facility" in section 123 a.(8) of the Act. Thus, Article 11 of the proposed Agreement satisfies the requirements of the Act in regard to storage.

As with the consents over retransfer, reprocessing, enrichment, and alteration in form or content, Article 12 also permits the storage consent right to be exercised on a long-term basis. Since Switzerland acquires fabricated fuel containing plutonium from foreign sources for use in Swiss reactors, the Agreed Minute sets forth procedures for implementing the storage consent right on a long-term predictable basis while meeting U.S. statutory requirements.

Such advance approval is permissible so long as the U.S. has sufficient information to make the statutory judgments required under sections 123 and 131 of the Act, and to ensure that the underlying basis for these judgments remains in effect while the approval continues. Moreover, as with the other activities eligible for advance, long-term consents, Article 13 ensures that the United States retains the right to suspend or terminate these activities consistent with the criteria set forth in the Act.

Paragraphs (E) and (F) of the Agreed Minute implement the advance consent for storage. Paragraph (E) indicates that plutonium, uranium 233 and high enriched uranium may be stored in Switzerland in facilities listed in Annexes 3 and 4. Annex 3 lists two power reactors which use MOX fuel (MOX is mixed plutonium-LEU oxide); Annex 4 lists two research reactors where U.S.-origin HEU is stored. The U.S. has sufficient information about these facilities to ensure that these activities meet applicable statutory criteria, both for new agreements for cooperation and the subsequent arrangement procedure. In particular, the U.S. has extensive knowledge in regard to the safeguards procedures applicable at these facilities.

Paragraph (F) ensures that the same degree of assurance is also provided for any addition of facilities to either Annex 3 or 4. The notification required for adding a facility shall contain, inter alia, a confirmation that relevant safeguards arrangements that will permit the IAEA to exercise fully its rights and meet its objectives and inspection goal have been agreed upon with the IAEA; and that physical protection measures as required by Article 4 of the Agreement will be applied. The confirmations required by the Agreed Minute, together with the safeguards requirements of Article 5 of the proposed Agreement, ensure that only those storage locations for which the U.S. is presently in a position to make the necessary judgments under the Act are approved under the proposed Agreement.

In sum, the advance U.S. approval for storage of plutonium, uranium 233 and high enriched uranium has been carefully drawn to include only a known Swiss program and future additional facilities that conform to the requirements of the proposed Agreement. The conditions of the proposed Agreement ensure that the United States will be at all times assured of the application of appropriate and effective safeguards and physical security measures.

The controls in Article 8 are subject to the proportionality provision in Article 2 (2).

Advance Consent - General Discussion

Prior to completing a review of the requirements of Section 123 of the Act, it would be useful to examine the legal basis for offering advance approvals in agreements for cooperation. Article 12 of the proposed Agreement permits such advance approvals for the consents over retransfer, enrichment, reprocessing, alteration in form or content, and storage. The Agreed Minute sets forth such advance consent procedures for retransfer and storage. The establishment of other procedures with Switzerland in the future as authorized in Article 12 would require a separate approval under Section 131 of the Act including Congressional review.

Advance approvals as authorized in Article 12 are permissible under the Act. Sections 123 and 127 of the Act require that the United States have certain approval rights, including reprocessing and retransfer approval rights. However, no provision of the Act or the NNPA precludes the United States from giving such approvals in advance when all the requirements of the Act can be properly met. In fact the Act clearly indicates that U.S. consent rights can be granted in advance. In that regard, section 131a (3) of the Act provides:

> The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material or a production or utilization facility transferred pursuant to such agreement for cooperation, or to the altering of irradiated fuel elements containing such material, and additionally, .o the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation....

The reference to "material proposed to be exported" makes clear that the consent for reprocessing or alteration of irradiated fuel may be granted prior to the export of any nuclear material. In the course of normal reactor operations, the fuel to be exported and then used in a reactor would not be reprocessed for five or more years. Therefore the "prior approval" that this section of the Act would allow the U.S. to give, would be far in advance of the actual time that the material in question would be reprocessed or altered in form or content.

Section 131a (3) of the Act provides that expedited consideration will be given to requests for consent for reprocessing "...when the terms and conditions for such actions are set forth in such agreement for cooperation...." This provision authorizes the U.S. to specify in the proposed Agreement the conditions that would have to be met for a subsequent approval of a request for reprocessing, alteration in form or content, storage or other fuel cycle activities. There is no substantive difference between that and the proposed Agreement which makes the approvals granted by the proposed Agreement and Agreed Minute contingent on continued

compliance with the provisions of the proposed Agreement.

Article 13 of the proposed Agreement provides that either Party may suspend or terminate an advance, long-term consent authorized by Article 12 "...on the basis of objective evidence that its continuation would entail a serious threat to the security of either Party ... or a significant increase in the risk of nuclear proliferation...." The "objective evidence" referred to is not further described, and there is no requirement that there be agreement that objective evidence either exists or is in fact persuasive. Therefore the United States has extremely wide discretion in deciding what evidence to consider and what weight to give to such evidence. Article 13 does require that the matter causing the consideration of suspension be of the same or greater degree of seriousness as a list of possibilities set out in subparagraphs (a) through (f). The items listed include: Switzerland detonating a nuclear explosive device; either Party violating the NPT, a relevant safeguards agreement, or the Nuclear Suppliers Guidelines; and, acts of war, serious internal disturbances, or international threats of war which threaten safeguards or physical protection for the activities to be suspended.

Additionally, consultations at the Cabinet level for the United States are required before a U.S. decision to suspend, and the decision must be taken by the President. However, there is no requirement that the consultations result in agreement or take any set amount of time. In the end, the United States, on the basis of evidence that the U.S. considers persuasive, and on a matter that the U.S. considers to be of sufficient seriousness, can suspend any or all of the advance, long-term consents which may be granted in the proposed Agreement. Thus the United States will be in a position to ensure that the substantive requirements in sections 123 and 131 of the Act are met, and continue to be met throughout the life of the proposed Agreement.

Under the approval provisions of section 123 b. of the Act the President approves and authorizes the proposed Agreement (including the advance consent arrangement) and makes a determination in writing that the performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security. In contrast, the subsequent arrangement procedures in section 131 of the Act only require the determination of the Secretary of Energy that the arrangement will not be inimical to the common defense and security. Obviously, a Presidential determination that an agreement will actually promote the common defense and security is far more comprehensive and substantive than a Secretarial determination that an arrangement will not be inimical.

The final point in regard to advance consent concerns Congressional review. Congressional review is enhanced by providing advance consent for reprocessing, alteration, and other activities in the proposed Agreement. This is because section 123 of the Act permits Congress to review a new agreement for cooperation for up to ninety days of continuous session, while section 131 provides that only subsequent arrangements involving reprocessing or the retransfer of plutonium in quantities greater than 500 grams must lie before Congress, and then only for fifteen days of continuous session.

In conclusion, the advance consent granted by the United States in the proposed Agreement has been analyzed in regard to all the criteria of section 123 and section 131 of the Act, with foremost consideration given to timely warning (see the relevant Department of Energy analysis), and it has been judged that such advance consents will not be inimical to the common defense and security; will not significantly increase the risk of proliferation; and will promote and will not constitute an unreasonable risk to the common defense and security.

(9) Sensitive Nuclear Technology

Subparagraph (9) of Section 123 a. of the Act requires:

> a guaranty by the cooperating party that any special nuclear material, production facility, or utilization facility produced or constructed under the jurisdiction of the cooperating party by or through the use of any sensitive nuclear technology transferred pursuant to such agreement for cooperation will be subject to all the requirements specified in this subsection.

Inasmuch as transfers of sensitive nuclear technology are not provided for in the proposed Agreement, this requirement of the Act does not pertain in this case.

C. NNPA Section 402 -- Additional Requirements

Section 402(a) of the NNPA requires that:

> Except as specifically provided in any agreement for cooperation, no source or special nuclear material hereinafter exported from the United States may be enriched after export without the prior approval of the United States for such enrichment....

As discussed earlier in regard to section 123 a.(7) of the Act, Article 8 of the proposed Agreement provides that enrichment of uranium to twenty percent or more in the isotope 235 may occur only if the Parties agree. Therefore, Switzerland must get a specific U.S. approval for any such high enrichment, which would require compliance with the subsequent arrangement procedures of section 131 of the Act. Concurrently, the proposed Agreement allows the enrichment of uranium subject to the Agreement up to twenty percent. This provision is fully consistent with the authority contained in section 402 (a) that permits enrichment "as specifically provided" in the proposed Agreement.

Section 402 (a) of the NNPA further requires that:

> ... no source or special nuclear material shall be exported for the purpose of enrichment or reactor fueling to any nation or group of nations which has, after the date of enactment of this Act, entered into a new or amended agreement for cooperation with the United States, except pursuant to such agreement.

This requirement is met by Article 6 (2) which specifies that "nuclear material ... may be transferred for applications consistent with this Agreement" and Article 6 (1) which states that cooperation pursuant to the proposed Agreement "... shall be in accordance with the provisions of this Agreement." No supply of nuclear material to Switzerland for enrichment or reactor fueling is permissible unless under the authority of the proposed Agreement.

Section 402 (b) of the NNPA requires that:

> In addition to other requirements of law, no major critical component of any uranium enrichment, nuclear fuel reprocessing, or heavy water production facility shall be exported under any agreement for cooperation...unless such agreement for cooperation specifically designates such components as items to be exported pursuant to the agreement for cooperation.

As with sensitive nuclear technology, the transfer of major critical components is not provided for in the proposed Agreement; therefore this requirement of the NNPA does not pertain in this case.

D. NNPA Section 404 -- Relationship to Existing Agreement

The proposed Agreement is the result of a negotiation to replace an agreement with Switzerland which expired in August of 1996. Negotiations for the purpose of replacing the previous agreement with a new agreement which would, inter alia, satisfy the requirements of the NNPA, were conducted frequently since 1978. However, Swiss officials did not have the authority to negotiate a new agreement until 1993.

Section 404(a) of the NNPA contains two provisions applicable to the relationship between a renegotiated agreement and the earlier agreement and any transactions carried out thereunder, as follows:

> To the extent that an agreement for cooperation in effect on the date of enactment of [the NNPA] with a cooperating party contains provisions equivalent to any or all of the criteria set forth in section 127 of [the Act] with respect to materials and equipment transferred pursuant thereto or with respect to any special nuclear material used in or produced through the use of any such material or equipment, any renegotiated agreement

with that cooperating party shall continue to contain an equivalent provision with respect to such transferred materials and equipment and such special nuclear material.

To the extent that an agreement for cooperation in effect on the date of enactment of [the NNPA] with a cooperating party does not contain provisions with respect to any nuclear materials and equipment which have previously been transferred under an agreement for cooperation with the United States and which are under the jurisdiction or control of the cooperating party and with respect to any special nuclear material which is used in or produced through the use thereof and which is under the jurisdiction or control of the cooperating party, which are equivalent to any or all of those required for new and amended agreements for cooperation under section 123 a. of [the Act], the President shall vigorously seek to obtain the application of such provisions with respect to such nuclear materials and equipment and such special nuclear material.

With regard to the first paragraph, Article 20 (1) ensures that the controls to be applied under the proposed Agreement to nuclear material, equipment and moderator material subject to the previous Agreement will be at least as strict as those contained in the previous Agreement. Thus, any provisions in the previous Agreement that are equivalent to section 127 of the Act will continue to apply to such items in the new agreement.

With regard to the second paragraph, Article 20 (1) provides that the provisions of the proposed Agreement shall apply to nuclear material subject to the previous Agreement, and to moderator material and equipment subject to the previous Agreement only to the extent covered by the previous Agreement. Therefore, the proposed Agreement is not completely retroactive and all consent rights will not apply to non-U.S. nuclear material used in or produced through the use of the power reactors supplied under the previous Agreement. The controls common to the old and new Agreements (e.g. safeguards, peaceful uses, retransfer consent) would apply to such moderator material and equipment, and any new transfers of moderator material or equipment under the new Agreement would be subject to all consent rights.

Section 404 (a) of the NNPA requires the President to "vigorously seek" the application of new controls to items subject to the previous Agreement, but does not require it so long as existing section 127 controls are not relinquished. Thus, this outcome satisfies the NNPA requirement.

E. Section 129 of the Atomic Energy Act -- Conduct Resulting in Termination of Nuclear Exports

Section 129 of the Act prohibits, in the absence of certain Presidential determinations,

exports of nuclear materials and equipment or sensitive nuclear technology to countries which engage in proscribed activities subsequent to the enactment of the NNPA (March 10, 1978). The activities in Section 129 include ongoing weapons-development activities in non-nuclear-weapons states involving source or special nuclear material, violation or termination of safeguards or an agreement for cooperation with the United States, or assistance to a non-nuclear weapon state relevant to acquisition of nuclear weapons. Based on all information available to ACDA, there is no basis for a finding that would trigger the provisions of Section 129 against Switzerland.

In arriving at that judgement, we have taken into account the history of Swiss efforts to keep open the option of acquiring nuclear weapons that was described in Part I of this NPAS. As noted in Part I, the Working Committee for Nuclear Matters established by the Swiss Government in 1969 to examine nuclear weapons issues was not disbanded until 1988. However, it appears from the Swiss-published history that this effort was limited to theoretical paper studies and calculations. The Swiss Government has confirmed this conclusion in writing and has indicated that all information generated as a result of this research will not be accessible for 30 years. There is no evidence that Switzerland engaged in any activities that constitute a violation of Switzerland's NPT obligations following its adherence to that Treaty in 1977.

F. NNPA Section 309 -- Components, Items, and Substances

Section 309 of the NNPA amended Section 109 of the Act to empower the Nuclear Regulatory Commission (NRC) to designate certain component parts, items and substances which, because of their significance for nuclear explosive purposes, should be subject to its licensing authority. Such licenses would be granted only upon a finding that (a) IAEA safeguards will be applied to such component, substance or item, (b) the component, substance or item will not be used for any nuclear explosive device or for research on or development of any nuclear explosive device, and (c) that no such component, substance or item will be retransferred without U.S. consent.

The NRC in its regulations (10 CFR Part 110) has identified certain reactor components and two substances -- heavy water and nuclear grade graphite -- as subject to these criteria.

The Act does not require that components be exported under an agreement for cooperation. In the case of this proposed Agreement, the transfer of components is not covered, and therefore any such transfers would have to be undertaken by means of arrangements outside of the proposed Agreement.

The Act also does not require that the "items and substances" subject to NRC licensing be exported under an agreement for cooperation. However, "items and substances" as defined by the NRC include moderator material, which pursuant to Article 6 (2) of the proposed Agreement may be transferred subject to the Agreement. Any transfer of moderator material under the Agreement would be required to meet the terms of the Agreement, which are far more extensive than those of section 309 of the NNPA. The proposed Agreement does not provide for the transfer of any other such "items", so to the extent the term "items" refers to other things, they would have to be transferred by means of arrangements outside of the proposed Agreement. Transfer of other "substances" covered under section 309 of the NNPA would also have to be outside of the proposed Agreement.

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## III. OTHER NONPROLIFERATION POLICY ISSUES

In addition to ensuring that required legal rights, guarantees, and safeguards are incorporated in the applicable agreement for cooperation, a decision by the United States to engage in nuclear cooperation with a given nation entails nonproliferation policy considerations. These considerations include the scope and terms of the cooperation envisaged under the agreement; the implications for other agreements (present and future); the degree to which nuclear cooperation supports U.S. nonproliferation objectives; and the overall role of the state or states concerned in maintaining sound international nonproliferation standards of conduct. These issues will vary from case-to-case; this section addresses them as they relate to the proposed Agreement with Switzerland.

The proposed Agreement expands U.S. consent rights over fuel cycle activities in Switzerland as they apply to nuclear material subject to the new agreement and to any equipment transferred following entry-into-force of the new agreement. This issue will be examined below along with the nature of the advance consent arrangements contained in the proposed Agreement. Safeguards considerations are also discussed, including the provisions for ensuring that effective IAEA safeguards will be applied to future facilities for storage of weapons-usable nuclear material. NPT and nuclear export control issues are addressed, as are some features of the proposed Agreement that are unique to this agreement and to the 1996 U.S.-Euratom agreement.

### A. Expanded Consent Rights and Guarantees in the Agreement

Section 404 of the Nuclear Non-Proliferation Act of 1978 (NNPA) calls on the President to seek to renegotiate pre-NNPA agreements for cooperation to obtain the added requirements for cooperation mandated for new agreements by the NNPA. The proposed Agreement meets that objective and contains all the requirements for agreements for cooperation mandated by the Atomic Energy Act of 1954, as amended by the NNPA. These provisions are especially important because they expand consent rights and guarantees beyond those in the existing U.S.-Switzerland agreement, particularly on weapons-usable material subject to the agreement. The Administration has stated that it is important to ensure that highly enriched uranium and plutonium are subject to the highest standards of safety, security, and international accountability. The entry-into-force of this agreement would promote such standards. Moreover, the new agreement will ensure a continuation of the long-standing U.S.- Swiss civil nuclear relationship, which has been temporarily suspended following expiration of the previous agreement in August of 1996.

The specific provisions of the proposed Agreement which create expanded consent rights or guarantees are:

#### (1) Storage of Special Nuclear Material

Article 11 requires that plutonium, uranium-233, and highly enriched uranium subject to the proposed Agreement shall be stored only in mutually-agreed facilities. The expired agreement contains no such consent right.

(2) Reprocessing

Article 9 expands the reprocessing consent right in the old agreement to include non-U.S.-origin nuclear material used in or produced through the use of any moderator material or equipment which may be transferred under the new agreement. The reprocessing consent right in the expired agreement applies only to U.S.-supplied nuclear material.

(3) Alteration in Form or Content

Article 10 expands the alteration in form or content consent right in the old agreement to include (a) U.S.-origin plutonium, uranium 233, and high enriched uranium and (b) such non-U.S.-origin nuclear material used in or produced through the use of any moderator or equipment which may be transferred under the new agreement. The alteration in form or content consent right in the expired agreement applies only to U.S.-supplied nuclear material that has been irradiated.

(4) Enrichment

Article 8 specifies that uranium subject to the proposed Agreement may not be enriched to 20% or more in the isotope 235 unless the parties agree. The expired agreement contains no such consent right.

(5) Retransfer

Article 7 expands the retransfer consent right on produced special fissionable material in the old agreement to include special fissionable material produced through the use of moderator material and equipment which may be transferred under the new agreement. The retransfer consent right in the expired agreement on produced special fissionable material applies only to such material that is produced in transferred nuclear material.

(6) Suspension of Cooperation/Right of Return

Article 16 specifies conditions under which either party may exercise its right to terminate or suspend cooperation under the proposed Agreement and/or to require the return of items subject to the agreement. The expired agreement contains no such rights.

(7) Clarification of Existing Terms of Cooperation

Finally, as required by Section 123, there are additional terms of cooperation specified in the agreement which represent an updating and clarification of standards which already apply to U.S.- Swiss nuclear cooperation. Among these provisions are full-scope IAEA safeguards as a condition of nuclear supply to Switzerland, a peaceful use assurance, and a requirement for adequate measures of physical protection for items subject to the agreement. In addition, Article 22.3 specifies that certain consent rights and guarantees continue in effect regardless of a termination or suspension of the agreement for any reason.

B. Advance Long-Term Consent to Plutonium Use and Reprocessing

In 1993, the United States announced that it would not encourage reprocessing and the civil use of plutonium. However, it was faced with the fact that many of its allies and friends (i.e., in Western Europe and Japan) are of the view that reprocessing is needed to dispose effectively of spent fuel and/or to acquire plutonium for future use as reactor fuel. Moreover, to support such fuel cycle planning, private and governmental organizations in these countries had made substantial investments in facilities for reprocessing and for conversion, fabrication and use of plutonium in reactors. The Administration was also faced with the need to renegotiate agreements for cooperation with two of these partners -- the European Atomic Energy Community (Euratom) and Switzerland.

Rather than engage in direct confrontation with these countries (none of whom posed any nuclear nonproliferation risk), the United States decided that it would maintain existing bilateral commitments to the use of plutonium in Western Europe and Japan, while nevertheless expressing doubt about the economics and proliferation risks of reprocessing. This decision resulted in no change in implementation of the 1988 agreement for cooperation with Japan, and in reaffirmation of offers already on the table to provide Euratom and Switzerland with advance, long-term consent for certain fuel cycle activities in exchange for their acceptance in a new agreement for cooperation of all the strengthened controls required by the Atomic Energy Act. This approach helped to overcome opposition in these countries to accepting strengthened U.S. controls and created part of the incentive to undertake and conclude negotiations on a new agreement. At the same time, U.S. readiness to provide advance consent to reprocessing and other fuel cycle activities in this situation rested on an assessment that such an approach would best serve our nonproliferation interests.

Over the next 10-20 years, more than 500 tons of plutonium are planned to be separated from spent power reactor fuel in Europe and Japan for use in civil nuclear energy programs. Of this amount, approximately half will be subject to U.S. controls. If the United States is to confront and minimize the potential risks of widespread plutonium use, we need to work cooperatively with these countries. In that way, we can seek to ensure that the strongest possible safeguards and physical protection measures would apply to reprocessing and subsequent plutonium use.

The alternative of abandoning the advance consent approach and of using case-by-case consent right approvals as a means to discourage reprocessing and plutonium use would only lead to confrontation and to serious bilateral tensions and disputes, which would jeopardize cooperation not only in nonproliferation matters, but also in other areas of U.S. relations with these countries. Such an approach would have little effect on the domestic energy plans of European countries.

The two previous Administrations had taken a similar approach and had concluded new U.S. agreements for cooperation with Finland, Norway, and Sweden which include long-term consent for the transfer of spent fuel to the United Kingdom and France for reprocessing. In 1988, a new agreement with Japan entered-into-force which provided long-term consent to reprocessing and plutonium use in Japan of nuclear material subject to the agreement. All of these agreements were submitted to Congress for review. The agreements with Japan and Norway are still in force. (The agreements with Finland and Sweden have been superseded by the 1996 U.S.-Euratom agreement.) Implementation of these agreements has proceeded smoothly, and there has been a strengthening of safeguards and physical protection measures on plutonium due in part to the operation of these agreements, particularly with Japan.

A new agreement with Euratom containing long-term consents for certain fuel cycle activities was signed in November 1995 and entered-into-force in April 1996, following the mandatory 90 day Congressional review period.

While Article 12 of the proposed Agreement permits several consent rights to be exercised on a long-term, predictable basis, the Agreed Minute establishes procedures only for Article 7 (retransfers) and Article 11 (storage). It was unnecessary to address the other consent rights because Switzerland's indigenous nuclear fuel cycle program at present does not include reprocessing, conversion, or fabrication of plutonium fuel. Switzerland transfers its spent fuel to Euratom for reprocessing and for subsequent conversion and fabrication of plutonium fuel -- an action that triggers the consent right in Article 7. (Once the Swiss spent fuel is received in Euratom, the reprocessing, conversion, and fabrication of plutonium fuel are subject to U.S. consent rights in the U.S.-Euratom agreement for cooperation.) The fabricated fuel containing plutonium is then returned to Switzerland for use in Swiss power reactors -- an action that triggers the storage consent in Article 11. (The United States has made clear to Euratom and Switzerland that it is prepared to consent to the return of this plutonium to Switzerland on an advance, long-term basis pursuant to the U.S.-Euratom agreement for cooperation; this approval will be processed under section 131 of the Atomic Energy Act.)

Should Switzerland decide in the future to engage in indigenous reprocessing activities or in the conversion or fabrication of plutonium that involves U.S.-obligated nuclear material, the United States would be required to consider satisfying such requirements on a long-term predictable basis. However, the United States would not be obligated to agree to such arrangements on a long-term basis. Paragraph (G) of the Agreed Minute makes clear that any

long-term consents not granted in the Agreed Minute "may be granted by agreement of the Parties." And any such request from Switzerland would be subject to a new approval under Section 131 of the Atomic Energy Act, which includes a Congressional review period. Current U.S. policy does not encourage reprocessing and the civil use of plutonium. Under such circumstances, it would be very difficult for the United States through the exercise of consent rights to facilitate the establishment of reprocessing or other civil plutonium facilities in Switzerland or any other nuclear trading partner where such facilities do not currently exist.

The advance consent arrangements set forth in the Agreed Minute are consistent with U.S. policy and statutory requirements including maintenance of effective IAEA safeguards and of adequate levels of physical protection. Section II of the NPAS outlined the legal basis for the exercise of consent rights on a advance, long-term basis. The advance consent may be suspended in whole or in part in the event of a serious threat to U.S. security including a significant increase in the risk of nuclear proliferation. Article 13 lists actions that could trigger such a suspension. However, the list is illustrative only; and ACDA believes the suspension right is clear and unequivocal with regard to any advance, long-term consents that may be granted under the proposed Agreement.

If the long-term consent is suspended, the Party against whom the suspension is invoked has two alternatives under Article 20 (2) with regard to "old" nuclear material (i.e., the nuclear material subject to the previous agreement, all of which will be folded into the new agreement when it enters into force). That party may decide to continue to apply all the provisions of the new agreement to this old material, or it may apply only those provisions of the new agreement that are comparable to the assurances that applied to this old nuclear material when it was subject to the existing agreement. (The U.S. agreements with Japan and Euratom have similar provisions.) However, this so-called "reversion" principle would little practical affect even in the case of a suspension of the advance consent arrangement where Switzerland opted for the second alternative. The previous agreement with Switzerland contains many of the same assurances found in the new agreement including peaceful use guarantees, safeguards, and a retransfer consent right.

The proposed Agreement should serve to further strengthen cooperation with Switzerland on ensuring maximum transparency and security of civil plutonium stockpiles. However, we must continue to pursue vigorously other U.S. initiatives such as the ongoing multilateral effort to establish voluntary guidelines to inter alia limit and ultimately reduce these stockpiles.

C. Safeguards Considerations

All nuclear activities in Switzerland are safeguarded pursuant to the Swiss-IAEA NPT safeguards agreement which entered into force in 1978. Switzerland has worked closely with the IAEA over the years toward ensuring the effective application of safeguards, and has

supported recent IAEA initiatives to strengthen safeguards in NPT non-nuclear-weapon states as described in Part I.

Article 12 and the Agreed Minute provide advance consent to the storage of weapons-usable material at facilities listed in Annexes 3 and 4 of the Agreed Minute. The facilities listed in these annexes are locations in Switzerland where U.S.-obligated plutonium and high enriched uranium are stored. The United States is able to make an informed judgment that the safeguards on these facilities are adequate. This judgment is based on technical information acquired through a general knowledge of IAEA safeguards practices, procedures, and criteria at research and power reactors utilizing such nuclear material.

For future reactors or other locations that may become subject to the advance long-term storage consent, the United States is able to make now a reasonable judgment that the safeguards to be applied at such facilities will be adequate. This judgment is based on the notification that Switzerland will provide to the United States at the time the facility is to be added to either of the annexes. The notification will state that safeguards arrangements agreed between IAEA and Switzerland will permit the IAEA to exercise fully its rights so as to enable the IAEA to meet its objectives and inspection goal for that facility. This notification will be supplemented with non-confidential information on the safeguards approach relevant to the facility in question. We would not expect any future storage sites added to annexes 3 or 4 to require any significant departure in safeguards approaches. This approach for adding facilities in Switzerland to the long-term consent arrangement is similar to that contained in the 1996 U.S.-Euratom agreement.

The advance consent arrangements for fuel cycle activities in Switzerland in the proposed Agreement are limited to approval for the storage of weapons-usable material as required under Article 11. Should Switzerland request pursuant to Article 12 that the consent over other fuel cycle activities in Switzerland (e.g. reprocessing) be satisfied on a long-term basis, such a request would have to be considered pursuant to Section 131 of the Atomic Energy Act. A judgement with regard to the effectiveness of safeguards relevant to such arrangements would be made upon such a request.

In addition to our information about safeguards on weapons-usable nuclear material, we have considerable familiarity with the type of IAEA safeguards applied to natural and low enriched uranium. That knowledge combined with the strong commitment of Switzerland to nonproliferation lead to a very high degree of confidence about the adequacy of IAEA safeguards under the proposed Agreement to ensure that any assistance provided thereunder is not used for military or nuclear explosive purposes.

D. Nuclear Nonproliferation Considerations

When assessing nonproliferation factors in connection with a civil nuclear cooperation agreement, it is appropriate to consider the overall nuclear nonproliferation policies

of the U.S. cooperating partner. These were reviewed in Part I of this NPAS. Switzerland is a party to the NPT, to the Physical Protection Convention, and is a member of the IAEA, the Nuclear Suppliers Group and the Zangger (NPT Exporters) Committee. Switzerland is a strong supporter of the international nuclear nonproliferation regime. Moreover, while the United States and Switzerland occasionally differ on individual policies related to implementation of the regime, there is no difference in our fundamental goals and we carry on a very constructive dialogue with Switzerland on nuclear nonproliferation issues.

The historical context of Switzerland's security concerns and interest in acquiring nuclear weapons were described in Part I, and the Swiss Government is to be commended for commissioning the history that was published in 1996. While serious consideration was given to the acquisition of nuclear weapons, the majority sentiment within Switzerland was solidly behind the NPT by the time Switzerland signed the Treaty in 1969. However, the statement issued upon NPT signature made clear that Swiss ratification was not a foregone conclusion; and thus it is not surprising that secret planning continued within Switzerland (the Working Committee for Nuclear Matters) to ensure maintenance of the necessary knowhow should the unexpected occur (e.g., a breakdown of the NPT). The Working Committee continued to meet even after Swiss NPT adherence in 1977, but apparently very infrequently and only for the purpose of considering preparatory measures in the event that a changed international situation forced Switzerland to reconsider its adherence to the NPT. The Swiss Government has stated that the activities of the Working Committee were confined to paper studies and calculations, and we have no reason to question that assertion. The Swiss also noted that all information generated through this research will be accessible only after 30 years.

Under current circumstances, there is no reason to question the commitment of Switzerland to its obligation under the NPT not to manufacture or acquire nuclear explosives. Moreover, with the demise of the Soviet Union and absence of any significant threat to the security of Western Europe, it is difficult to foresee circumstances that would result in Switzerland reconsidering its commitment to the NPT.

Switzerland will continue to be a prime procurement target for nuclear proliferators because of its extensive nuclear related industry and reputation for export promotion. Moreover, it is likely that the Swiss Government will continue to be the recipient of U.S. demarches urging action on individual cases. However, Switzerland has demonstrated its support for nuclear export controls through constructive participation in multilateral regimes, and through regular consultations with the United States on cases of concern. The success of interdiction efforts by suppliers depends on the sharing of information and multilateral cooperation, and Switzerland has shown itself to be a constructive participant in such activities.

Switzerland's experience in thwarting nuclear procurement activities by proliferant nations is similar to those of many other countries with an advanced manufacturing sector which includes nuclear-related items. Any effort to tighten up domestic export controls will encounter

opposition from entrenched commercial and bureaucratic interests, particularly in an economy like Switzerland that is heavily dependent on exports for its prosperity. This situation often results in the Swiss taking positions on nuclear export control issues that some would view as overly legalistic and technical. Nonetheless, Switzerland has taken major strides over the years in improving its export control system even to the point where Switzerland will soon have in place a so-called "catch-all" control, i.e., the authority to halt the export of items not contained on any control lists when destined for a nuclear weapons program or other proscribed activity.

With regard to minimizing the use of weapons-usable nuclear material in civil applications, the Swiss nuclear program is at odds with U.S. policy which does not encourage reprocessing and the use of plutonium for civil applications. However, Switzerland has supported upgraded measures in the area of safeguards and physical protection on plutonium, and increased transparency for civil plutonium use. And its nuclear export policy in no way encourages reprocessing or plutonium use in countries which pose a proliferation risk. Switzerland has also shut down its lone HEU-fueled research reactor and has returned spent HEU fuel from that reactor to the United States.

E. Retroactivity/Perpetuity/Reliability of Supply

The close relationship between Switzerland and Euratom's nuclear fuel cycles, and their similar experiences in civil nuclear cooperation with the United States over the past 20 years, resulted in a situation where the same issues came up in each negotiation -- and some of these were among the most difficult to resolve. Among these issues were retroactivity, perpetuity of controls (in the event the proposed Agreement is suspended or terminated), and reliability of supply. Not surprisingly, the solutions which resolved these issues in the 1996 U.S.-Euratom agreement were also adopted for the U.S.-Swiss agreement. The circumstances surrounding these U.S. agreements were unique -- and ACDA does not believe the outcome on these issues should set a precedent for other agreements.

(1) Retroactivity

Section 404 (a) of the NNPA requires the President "vigorously" to seek the application of the provisions of any new agreement concluded pursuant to Section 123 of the Atomic Energy to equipment and nuclear material previously transferred under an agreement for cooperation. In all agreements for cooperation which have entered into force since the NNPA except for the 1996 agreement with Euratom, the United States has achieved that objective, i.e., the new agreements were fully retroactive to previous exports of equipment and nuclear material.

As with Euratom, Switzerland was prepared to accept retroactive application of controls on previously exported nuclear material, but not on U.S. equipment (i.e., reactors) that had been previously exported. The proposed Agreement covers old reactors only to the extent they were covered under the previous Agreement. Thus, nuclear material produced in non-U.S. fuel used in

old U.S. reactors would not be subject to consent rights in the new Agreement (e.g., reprocessing, retransfer). Such fuel would, however, be subject to IAEA safeguards and to peaceful use guarantees.

This failure to achieve full retroactivity for reactors supplied under the previous Agreement will not result in a total loss of consent rights over nuclear material used in or produced through the use of these reactors. One of Switzerland's U.S.- supplied power reactors is still fueled by the United States. Moreover, Swiss utilities are using U.S.-obligated plutonium in two other U.S.-supplied reactors, and any nuclear material produced through the use of that plutonium will be subject to U.S. consent rights.

2) Perpetuity of Controls

In the unlikely event that the agreement is suspended or terminated, the provisions of the agreement will apply as follows:

(a) The peaceful use assurances, safeguards, physical protection assurances, and retransfer consent will continue in effect for all nuclear material and equipment.
(b) The parties will consult about the continued application of the other provisions (i.e. consent for enrichment, reprocessing, alteration in form or content, storage).
(c) If the parties cannot reach agreement with regard to the continued application of these consent rights:

(i) the "old" nuclear material and equipment that had been subject to the previous agreement (i.e. at the time the new U.S.-Swiss agreement entered-into-force) remains subject to the new agreement to the extent of the controls that had existed in the old agreements (i.e. consent over reprocessing and alteration in form or content of U.S.-supplied nuclear material).
(ii) the question about perpetuity of these consent rights on the "new" nuclear material and equipment is put before an Arbitral Tribunal established pursuant to Article 19 (3). Until this Tribunal reaches a decision or the parties reach a mutually acceptable arrangement, the agreement for cooperation is not terminated and thus this nuclear material and equipment would remain subject to all controls. If the Tribunal decides against perpetuity of any of the provisions in question, the United States would have the right to require the return to the United States of this nuclear material and equipment.

We believe this compromise solution fully serves U.S. interests. There is no legal requirement for the United States to obtain perpetuity for consent rights such as reprocessing and alteration in form or content. The only legal requirement is for perpetuity of safeguards, which the proposed Agreement does provide for. Further, we believe there is only a very remote chance that this provision would ever be implemented -- at least not during the 30 years

stipulated as the minimum duration of the proposed Agreement. If the worst case happened, e.g., the agreement is suspended or terminated by Switzerland, the decision of the Arbitral Tribunal goes against the United States, and the United States is not in a position to require the return of U.S.-obligated nuclear material -- Switzerland would then be free to reprocess, alter in form or content, or store "new" nuclear material without U.S. consent. However, Switzerland does not have a reprocessing plant, nor does it have large facilities for alteration in form of content such as plutonium conversion of fabrication plants. Moreover, the nuclear material in question would remain subject to safeguards, peaceful use assurances, physical security measures, and retransfer consent rights -- provisions that would allow the United States more than adequate assurance that the continued operation of the agreement is not inimical to the common defense and security. A termination of the U.S.-Swiss agreement would also preclude any future exports or retransfers of U.S.-obligated nuclear material to Switzerland, including fabricated plutonium fuel from Euratom.

(3) Reliability of Supply

The United States believes the proposed Agreement establishes an excellent framework for a long-term, stable nuclear supply relationship with Switzerland. Absent any significant change in circumstances, we would not anticipate the need for any modification to U.S. laws or policies that would adversely affect cooperation under the proposed Agreement. However, given the difficulties in U.S.-Switzerland cooperation mentioned earlier in the NPAS, Swiss officials wanted the text of the proposed Agreement to avoid any references to subsequent changes in national laws or policies.

Thus, the proposed Agreement does not contain the standard provision that all cooperation thereunder is subject to applicable treaties, laws, regulations, and license requirements in force in the respective parties. This provision was opposed by Switzerland as it highlighted the fact that the United States could unilaterally alter the terms of cooperation established in the proposed Agreement. Swiss officials understand that such changes could in fact be made, but questioned why it was necessary to include this provision in the agreement in view of the still-lingering resentment in some Swiss quarters over the impact of the 1978 NNPA on U.S.- Swiss nuclear cooperation.

This outcome in no way alters the rights and obligations which either party already has under the proposed Agreement. The language of the agreement does not legally obligate either party to provide nuclear services or supply; the proposed Agreement sets forth a legal framework under which such cooperation may take place pursuant to regulatory and licensing requirements established by each party.

## IV. CONCLUSION

ACDA supports the proposed Agreement and cites the following reasons:

First, the proposed Agreement (30 years duration) establishes a predictable and long-term framework for a continuation of civil nuclear commerce between the United States and Switzerland. We expect the success of the negotiations and entry-into-force of the proposed Agreement will further enhance our close cooperation with Switzerland on critical nuclear nonproliferation goals.

Second, the proposed Agreement meets all the requirements of the Atomic Energy Act, as amended, and thus includes the best possible safeguards and controls to ensure against any possible misuse of U.S. supply under the agreement.

Third, while granting long-term consent in the proposed Agreement for the transfer of spent fuel to Euratom for reprocessing and for the storage and use of plutonium fuel in Switzerland, U.S. nuclear nonproliferation and other national security interests are protected through the provision for suspension of these consent rights. Moreover, expanding the scope of the long-term consent in the proposed Agreement to other fuel cycle activities such as reprocessing would require a future U.S. approval under section 131 of the Atomic Energy Act.

Fourth, the proposed Agreement will expand U.S. controls over the storage and use of U.S.-obligated plutonium in Switzerland and will help to maintain the highest possible standards for the safety and security of highly enriched uranium and plutonium.

Fifth, Switzerland's participation in and commitment to the nuclear nonproliferation regime demonstrates its strong support for preventing the further spread of nuclear weapons. While Swiss leaders considered the acquisition of nuclear weapons in the 1950s and 1960s, this approach was firmly rejected in favor of ensuring Switzerland's security through adherence to the NPT. Moreover, Switzerland has taken a responsible approach to the need for strengthened nuclear export controls, and has taken major strides in recent years to thwart procurement by countries seeking nuclear weapons.

Sixth, Switzerland's strong commitment to the NPT, its acceptance of strengthened IAEA IAEA safeguards and physical protection measures, and the bilateral guarantees and controls in the proposed Agreement, offer a high degree of confidence in the reliability of the peaceful use assurances offered by Switzerland in the proposed Agreement. Moreover, the dissolution of the Soviet Union and the absence of a significant threat to the security of Western Europe make it

highly unlikely that Switzerland would reconsider its commitment to the NPT in the foreseeable future.

Seventh, the proposed Agreement underlines U.S. readiness to carry out its obligation under Article IV of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to engage in civil nuclear cooperation with other NPT parties in a manner that furthers the objectives of the Treaty.

In the context of successfully concluding negotiations the United States exercised maximum flexibility within its statutory requirements which led to compromises on two issues that are found in but one other agreement for cooperation concluded since enactment of the 1978 Nuclear Non-Proliferation Act. We view this result as wholly justifiable under the circumstances, but believe that the manner in which these issues were resolved should not be considered a precedent for negotiating any other new agreements for cooperation.

The proposed Agreement should serve to strengthen cooperation with Switzerland on ensuring maximum transparency and security of civil plutonium stockpiles. Recognizing the proliferation and security risks associated with stockpiles of separated plutonium, it is important that the United States and Switzerland continue to support the multilateral exercise aimed at establishing voluntary guidelines to inter alia limit and ultimately reduce these stockpiles.

Thus, on the basis of the analysis in this assessment statement and all pertinent information of which the Agency is aware, the United States Arms Control and Disarmament Agency has arrived at the following assessment, conclusions, views, and recommendations:

1. The safeguards and other control mechanisms and the peaceful use assurances contained in the proposed Agreement are adequate to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose.

2. The proposed Agreement meets all the legal requirements of the Atomic Energy Act and the NNPA.

3. Execution of the proposed Agreement would be compatible with the nonproliferation program, policy, and objectives of the United States.

4. It is recommended that the President determine that the performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security; and that the President approve and authorize the execution of the proposed Agreement.

S/S 9716270

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**DEPARTMENT OF STATE**
**WASHINGTON**

September 11, 1997

MEMORANDUM FOR: THE PRESIDENT

FROM: Strobe Talbott, Acting
Federico F. Peña

SUBJECT: Proposed Agreement for Cooperation Between the United States of America and Switzerland Concerning Peaceful Uses of Nuclear Energy

This memorandum recommends that you make certain statutory determinations regarding a proposed new agreement for peaceful nuclear cooperation between the United States and Switzerland, that you approve the proposed agreement, and that you authorize its signature and transmittal to the Congress. A key feature of the proposed agreement is a long-term framework for Swiss nuclear fuel cycle activities, including retransfers of nuclear material subject to the agreement for reprocessing in the European Atomic Energy Community (Euratom), and the return of the recovered plutonium to Switzerland for use in Swiss facilities under stringent conditions and controls. In respect to its advance, long-term U.S. approvals regarding plutonium, the proposed U.S.-Switzerland agreement is similar to the U.S.-Euratom agreement that you approved in November 1995.

The text of the proposed agreement is at Attachment 3. A summary of its basic provisions is at Attachment 4.

Upon entry into force the agreement will replace an earlier U.S. agreement with Switzerland signed December 30, 1965, which expired by its terms August 8, 1996.

In accordance with the provisions of section 123 of the Atomic Energy Act, the proposed agreement was negotiated by the Department of State, with the technical assistance and concurrence of the Department of Energy and in consultation with the Arms Control and Disarmament Agency (ACDA), whose views and recommendations are at Attachment 5. A Nuclear Proliferation Assessment Statement concerning the agreement is being submitted to you separately by the Director of ACDA. The views and recommendations of the members of the Nuclear Regulatory Commission are at Attachment 6.

Under the Atomic Energy Act, the agreement may not be transmitted for Congressional review until you have determined that it will promote, and will not constitute an unreasonable risk to, the common defense and security, and until you have approved it and authorized its execution. If you approve our recommendation that you take these actions, the agreement will be signed and then submitted for review to both houses of Congress, in accordance with sections 123 b. and d. of the Act, where it must lie for 90 days of continuous session before it may be brought into force.

The Nuclear Non-Proliferation Act (NNPA) of 1978 contains specific requirements for new agreements for peaceful nuclear cooperation. In our judgment, the proposed agreement meets all the requirements set forth in the NNPA.

The purpose of the agreement is to provide an updated comprehensive framework for peaceful nuclear cooperation between the United States and Switzerland, to facilitate such cooperation, and to provide for strengthened controls reflecting our shared strong commitment to nuclear non-proliferation. The new agreement provides for the transfer of moderator material, nuclear material, and equipment for both nuclear research and nuclear power purposes. It does not provide for transfers under the agreement of any sensitive nuclear technology (SNT). (U.S. law permits SNT to be transferred outside the coverage of an agreement for cooperation provided that certain other conditions are satisfied. However, we have no plans to transfer SNT to Switzerland outside the agreement.)

The proposed agreement has an initial term of 30 years, and will continue in force indefinitely thereafter in increments of five years each until terminated in accordance with its provisions. In the event of termination, key non-proliferation conditions and controls, including guarantees of safeguards, peaceful use and adequate physical protection, and the right to approve retransfers to third parties, will remain effective. The agreement also establishes procedures for determining the continuation of additional controls.

Article 12 of the agreement and the agreed minute (which constitutes an integral part of the agreement) provide to Switzerland advance, long-term approval for retransfers to specified facilities in Euratom of nuclear material subject to the agreement for reprocessing, alteration in form or content, and storage, and for the return to Switzerland of recovered nuclear materials, including plutonium, for use or storage at specified Swiss facilities. Pursuant to Article 13, any advance, long-term approval may be suspended or terminated if it ceases to meet the criteria set out in

U.S. law, including criteria relating to safeguards and physical protection.

Advance, long-term approval is a central feature of several other U.S. agreements for peaceful nuclear cooperation, including the 1988 U.S.-Japan agreement and the 1996 U.S.-Euratom agreement. In the case of these earlier agreements, the Executive Branch argued successfully that advance, long-term approvals are legally permissible and may be given as part of the agreement itself. In each case, Congress permitted the agreement to be brought into force following a careful review.

The advance, long-term approvals have been given pursuant to your policy directive of September 27, 1993. They reflect Administration policies aimed at improving the climate of U.S. cooperation with countries with good nuclear non-proliferation credentials and providing them with greater certainty in the planning of their civil nuclear programs. Switzerland is a party to the Non-Proliferation Treaty (NPT) and a strong supporter of nuclear non-proliferation efforts worldwide. The ACDA Nuclear Proliferation Assessment Statement addresses this issue in greater detail.

The provisions of Article 12 of the agreement and the provisions of the agreed minute do not constitute a subsequent arrangement under the Atomic Energy Act. In view, however, of the important commitments they entail, and in view of the fact that they would constitute a subsequent arrangement under the Act if agreed separately from the agreement for cooperation, we have ensured that these provisions meet all requirements for subsequent arrangements as set forth in section 131 of the Act. (An analysis of the approvals contained in Article 12 of the agreement and the agreed minute, and the determination and judgment by the Secretary of Energy with regard to the section 131 criteria, are at Attachment 7.)

Specifically, we have considered whether the retransfers for reprocessing and the related activities to which consent has been given on an advance, long-term basis will result in a significant increase of the risk of proliferation beyond that which exists at the time the approval is requested. We have concluded that these approvals will not result in a significant increase of such risk. In making this judgment we have, in accordance with the standards embodied in section 131 b. of the Act, given "foremost consideration to whether or not the reprocessing will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which [a] non-nuclear weapon state could transform the diverted material into a nuclear explosive device."

In our opinion the proposed agreement meets all statutory requirements and will also serve United States non-proliferation, commercial and other foreign policy interests. Therefore, we recommend that you determine, pursuant to section 123 b. of the Atomic Energy Act of 1954, as amended, that performance of the agreement will promote, and will not constitute an unreasonable risk to, the common defense and security, and that you approve the agreement and authorize its execution.

RECOMMENDATION

That you sign the determination, approval and authorization at Attachment 1 and the transmittal to Congress at Attachment 2.

ATTACHMENTS

1. Draft Determination, Approval and Authorization
2. Draft Transmittal to the Congress (To be held until after the Agreement has been signed)
3. Proposed Agreement for Cooperation Between the Government of the United States of America and the Swiss Federal Council Concerning Peaceful Uses of Nuclear Energy
4. Summary of Basic Provisions of the Agreement
5. Views and Recommendations of the Director of the Arms Control and Disarmament Agency
6. Views of the Nuclear Regulatory Commission
7. Analysis of Consents and Approvals, and Determination by the Secretary of Energy

**Department of Energy**
Washington, DC 20585
September 5, 1997

SUBSEQUENT ARRANGEMENTS ASSOCIATED WITH THE UNITED STATES - SWITZERLAND AGREEMENT FOR COOPERATION CONCERNING THE PEACEFUL USES OF NUCLEAR ENERGY

Judgments Under Section 131

As required by Section 131 of the Atomic Energy Act of 1954, as amended, I have determined that the subsequent arrangements associated with the United States - Switzerland Agreement for Cooperation in the Peaceful Uses of Nuclear Energy will not be inimical to the common defense and security and will not result in a significant increase in the risk of proliferation beyond that which exists now, or which existed at the time approval was requested.

In making the latter determination, I have given foremost consideration to whether or not these activities will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which a non-nuclear weapon state could transform the diverted material into a nuclear explosive device.

I believe this judgment is supported by many factors, including those demonstrating the commitment of Switzerland to the application of effective, comprehensive safeguards by the International Atomic Energy Agency under the treaty on the Non-Proliferation of Nuclear Weapons. This judgment is also supported by the strong nonproliferation credentials of Switzerland, adherence to the Treaty on the Non-Proliferation of Nuclear Weapons, the lack of incentives to acquire nuclear explosive devices, and by the intimate and important relationship that the United States has with Switzerland.

Federico F. Peña

**STATUTORY DETERMINATIONS RELATED TO THE PROPOSED AGREEMENT FOR COOPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY BETWEEN THE GOVERNMENT OF THE UNITED STATES AND THE GOVERNMENT OF SWITZERLAND**

**Table of Contents**

**STATUTORY DETERMINATIONS RELATED TO THE PROPOSED AGREEMENT FOR COOPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY BETWEEN THE GOVERNMENT OF THE UNITED STATES AND THE GOVERNMENT OF SWITZERLAND**

The Department of Energy has prepared this analysis to support determinations by the Secretary of Energy pursuant to the Atomic Energy Act of 1954, as amended, (hereinafter "AEA") for approval of the following:

- the consents and approvals agreed upon in the proposed Agreement for Cooperation in the Peaceful Uses of Nuclear Energy between the Government of Switzerland and the Government of the United States of America and

- a subsequent arrangement giving long-term prior consent to the European Atomic Energy Community (hereinafter EURATOM), pursuant to Article 8.1.(C.)(iii.) of the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy between the United States of America and EURATOM, (hereinafter referred to as the U.S.-EURATOM agreement) for retransfers, to Switzerland, of Swiss plutonium recovered by reprocessing (including plutonium fabricated into mixed oxide fuel elements) subject to the U.S.-EURATOM Agreement, for use in Switzerland's peaceful nuclear program.

## I. SUMMARY AND OVERVIEW

### A. Background and framework of analysis

The Atomic Energy Act of 1954, as amended, requires that agreements for peaceful nuclear cooperation provide for U.S. "consent" before the other party engages in certain activities (e.g., retransfer of nuclear material subject to the Agreement) and for U.S. "approval" before the other party engages in certain other activities (e.g., enrichment, reprocessing or other alteration in form or content of nuclear material subject to the Agreement). In the proposed Agreement for Cooperation with Switzerland, some of these consents and approvals are granted by the United States in advance on a long-term basis. In this connection, the United States also indicated in a note to the new U.S.-EURATOM Agreement that it would be prepared to offer long-term, prior consent to Switzerland to transfer U.S. obligated spent fuel to EURATOM for reprocessing, storage and subsequent manufacture into mixed oxide fuel elements, and to offer long-term, prior consent to EURATOM to retransfer the recovered plutonium to Switzerland for use in the Swiss peaceful nuclear program (Article 8.1 (C)(iii)). This analysis reviews these consents and approvals in light of the applicable provisions of the AEA.

The primary focus of this analysis is on the following statutory requirements

- whether the Agreement as a whole "will promote and will not constitute an unreasonable risk to the common defense and security of the United States" (the criterion in AEA section 123.b.);

- whether the inclusion in the Agreement of advance consents and approvals for certain activities can be determined to be "not inimical to the common defense and security of the United States" (the criterion of AEA section 131.a.); and

- whether advance consent by the United States for (1) the retransfer for reprocessing of Swiss spent fuel in designated plants in EURATOM and fabrication of the recovered plutonium into mixed oxide (MOX) fuel elements, and (2) retransfer to Switzerland of that MOX fuel, would result in a significant increase of the risk of proliferation (the criterion in AEA section 131.b.).

Exports under the Agreement and retransfers from EURATOM to Switzerland must also be consistent with sections 127 and 128 of the AEA. An analysis of how the consents and approvals will relate to AEA sections 127 and 128 is included in the annex to this analysis.

### B. Major features of the Agreement for Cooperation

The previous Agreement for Peaceful Nuclear Cooperation with Switzerland expired on August 8, 1996. The proposed new Agreement with Switzerland accomplishes important objectives for both parties. From the U.S. point of view, it incorporates all of the nonproliferation conditions required by the AEA and allows the continuance of forty years of scientific and commercial nuclear cooperation with Switzerland. In particular, the new Agreement complies with the requirements in AEA section 123.a. Agreement of both parties is required for the following activities involving U.S.-obligated material[1] and equipment:

- retransfers of nuclear material, moderator material and equipment (Article 7);

- enrichment of uranium to 20% or more of U-235 (Article 8);

- reprocessing (Article 9);

- alteration in form or content of plutonium, uranium-233, high enriched uranium or irradiated nuclear material (Article 10); and

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[1]U.S.-obligated material is material which has been transferred from the United States to another country pursuant to an agreement for cooperation in the peaceful uses of atomic energy or which has been used in or produced through the use of any material, equipment or facility so transferred.

- storage facilities for plutonium, uranium-233 and high enriched uranium (Article 11).

For Switzerland, the new Agreement allows continued access to U.S. equipment and material and provides reasonable certainty that important civil nuclear activities will be allowed to proceed on a stable and predictable basis. This predictability is achieved through an Agreed Minute in which the United States grants long-term consent and approval for the following:

- transfer of depleted uranium, natural uranium, low enriched uranium, thorium, moderator material and equipment subject to the agreement, to countries designated by the United States in Annex 1 to the Agreed Minute;

- transfer and reprocessing of Swiss spent fuel at French and British reprocessing plants listed in Annex 2 to the Agreed Minute (plants at La Hague and Marcoule in France, and at Sellafield and Dounreay in the United Kingdom);

- conversion of the plutonium extracted and its use to fabricate MOX fuel at facilities in France, Belgium, the United Kingdom and possibly Germany (if an operating license is issued for the Siemens plant at Hanau), also listed in Annex 2 to the Agreed Minute;

- return of the plutonium, including plutonium in the form of MOX fuel, to Switzerland for use in Swiss power reactors, listed in Annex 3 to the Agreed Minute; and

- storage of plutonium, high enriched uranium (HEU) and uranium isotope 233 (U-233) in facilities listed in Annex 3 and Annex 4 to the Agreed Minute.

The United States may add or delete countries to or from the list in Annex 1 to the Agreed Minute by notice to the Swiss Government. Changes may be made in Annex 2 to the Agreed Minute, listing reprocessing and other facilities outside Switzerland, only by agreement of both parties.

By notice to the United States, Switzerland may make additions to Annexes 3 and 4, listing, respectively, Swiss facilities eligible to use MOX fuel containing U.S.-obligated plutonium, and facilities to store U.S.-obligated HEU, plutonium, and U-233. These notices must confirm an IAEA safeguards arrangement for the new facility, and application of physical protection measures required by the Agreement.

The United States may suspend or terminate in whole or in part any of its long-term consents and approvals on the basis of objective evidence that its continuation would entail a serious threat to the security of either party or a significant increase in the risk of nuclear proliferation. Article 13 lists the following circumstances as examples of situations sufficiently serious to justify suspension or termination:

- Switzerland detonates a nuclear weapon or any other nuclear explosive device;
- Switzerland materially violates, terminates, or declares itself not bound by the Treaty on the Non-Proliferation of Nuclear Weapons, the Nuclear Suppliers Group export guidelines (INFCIRC 254/Rev.2/Part 1.), or the relevant safeguards agreement with the IAEA;
- Switzerland retransfers an item subject to the Agreement to a non-nuclear weapon state which has not concluded a full-scope safeguards agreement with the IAEA;
- the Board of Governors of the IAEA subjects Switzerland to measures taken pursuant to Article 19 of its safeguards agreement with the agency; or
- acts of war or serious internal disturbances preventing the maintenance of law and order, or serious international tension constituting a threat of war, that threaten severely and directly the safeguarding or physical protection of activities subject to consent.

These provisions are virtually identical to those in the Agreed Minute to the U.S.-EURATOM Agreement on the suspension of certain consents and approvals in that Agreement.

### C. Subsequent arrangement under the U.S.-EURATOM Agreement

As noted above, Switzerland plans to have its spent power reactor fuel reprocessed, and the recovered plutonium fabricated into MOX fuel, at facilities in EURATOM, after which the MOX fuel elements will be returned to Switzerland for burning in its power reactors. While in EURATOM for these purposes, U.S.-obligated nuclear material from Switzerland will be subject to the 1996 U.S.-EURATOM Agreement for Cooperation in the Peaceful Uses of Nuclear Energy. Under Article 8 and the Agreed Minute to that Agreement, the United States must consent to the retransfer to Switzerland of any MOX fuel containing U.S.-obligated plutonium. As a subsequent arrangement under the U.S.-EURATOM Agreement, this document therefore assesses whether such consent would meet the criteria in the AEA and the Agreed Minute, and concludes that those criteria would be met.

### D. Conclusions and recommendations

This analysis concludes that granting the consents and approvals in the Agreed Minute to the U.S.-Swiss Agreement will further the interests of the United States in nonproliferation, international energy cooperation, and international trade. Specifically, it reaches the following conclusions:

- Performance of the proposed Agreement will promote and will not constitute an unreasonable risk to the common defense and security.

- The Agreement, including the advance consents and approvals, will not be inimical to the common defense and security.

- In the case of activities to which the standard in section 131.b. of the Atomic Energy Act (AEA) applies, the consents and approvals will not result in a significant increase of the risk of proliferation.

- The Agreement and the consent to EURATOM for retransfers of plutonium to Switzerland meet the requirements of sections 127 and 128 of the AEA.

- The consent to EURATOM for retransfers of Swiss plutonium recovered by reprocessing (including plutonium fabricated into mixed oxide fuel elements), subject to the U.S.-EURATOM Agreement, to Switzerland for use in that country's peaceful nuclear program meets all the applicable standards of that Agreement and of sections 123.b., 127, 128, and 131 of the AEA.

Finally, this analysis recommends that the Secretary of Energy determine that implementation of the Agreement as a whole will neither be inimical to the common defense and security nor result in a significant increase of the risk of proliferation, and that the Secretary of Energy and the Secretary of State jointly recommend that the President authorize execution of the proposed Agreement.

## II. DESCRIPTION AND ANALYSIS OF PERTINENT FACTS AND PROVISIONS IN THE AGREEMENT

### A. Background

On June 21, 1956, Switzerland concluded one of the earliest peaceful nuclear cooperation agreements with the United States. This was followed by another Agreement for Cooperation, which was signed on December 30, 1965, and which expired on August 8, 1996. The new Agreement for Cooperation will replace that Agreement.

The EURATOM Member States are now Switzerland's primary nuclear trading partners, and the Swiss plan to rely on them for certain fuel cycle services in the future. It is also possible that Switzerland may join the European Union, including EURATOM. The Swiss Government therefore wanted to ensure that its Agreement with the United States was compatible with the U.S.-EURATOM Agreement, both to ensure the continuance of existing patterns of commerce and to ease any future transition to EURATOM membership.

For the United States, the negotiations had two goals:

- to replace the existing Agreement for Cooperation with a new Agreement that would meet the nonproliferation criteria for such agreements specified in AEA section 123; and

- to provide a stable, predictable, and assured basis for continued cooperation with the Government of Switzerland.

Section 123.a. of the AEA requires that new agreements for cooperation in the peaceful uses of atomic energy provide for prior consent and approval by the United States before certain activities can be carried out involving material and equipment subject to the agreement. U.S. consent or approval may be granted (1) by a "subsequent arrangement," as provided for in section 131 of the AEA, in response to the request by the cooperating state or group of states for a proposed activity, or (2) in an agreement for cooperation, as in the U.S. Agreements for Cooperation with Japan, Norway and EURATOM, as well as the recently terminated Agreements with Finland and Sweden.[2] In the Agreement with Switzerland, certain consents and approvals are provided in advance on a long-term basis. That feature of the Agreement is described in detail in Section C. below.

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[2] Finland and Sweden are now covered by the EURATOM Agreement.

## B. Overview of the Swiss peaceful nuclear program

### 1. Organization and regulatory authority

The Swiss nuclear industry is subject to a highly structured and interconnected regulatory system of checks and balances. In Switzerland, the development and use of nuclear energy is not a state monopoly, and private industry plays a major role in the nuclear field.

The Swiss Confederation first regulated the peaceful use of nuclear energy by means of a Federal Order, dated 18 December 1946, encouraging research in the field of nuclear energy. Nuclear legislation in Switzerland is currently based on the Federal Atomic Energy Act of December 23, 1959. The 1959 Act contains basic authority for regulating the possession, import, export and use of nuclear material.

The Federal Council, the executive branch of the government at the federal level, has a major supervisory role in the organization and conduct of nuclear activities. The Federal Council has authority to issue general regulations in the atomic energy field, and is responsible for granting construction and operating licenses for nuclear installations. In general, the Council supervises nuclear installations and materials, and may take measures necessary for the protection of persons, property, and important rights, as well as for Switzerland's external security and the fulfillment of its international commitments. The Federal Assembly, Switzerland's parliament, is responsible for supervising the Council's licensing decisions.

Under the order of the Federal Council of December 23, 1968, the Federal Energy Office, which forms part of the Federal Department of Transport, Communications, and Energy, was given responsibility to prepare and implement legislation in the nuclear energy field, and, in conjunction with the Federal Department of Foreign Affairs, to prepare and oversee the implementation of international nuclear treaties. The Federal Department of the Interior is responsible for coordinating public and private nuclear research activities. The Council of the Federal Ecoles Polytechniques oversees the administration of the Paul-Scherrer Institute (PSI), which is the preeminent nuclear research establishment in the country.

The possession, transport, import and export of nuclear fuels are subject to prior authorization by the Confederation, and the Federal Energy Office deals with applications and grants licenses based on advice from the Principal Division for the Safety of Nuclear Installations (DSN). The DSN also is responsible for certifying that the international regulations on the transport of dangerous goods have been followed.

At present, the Swiss Energy Department is engaged in a complete revision of the 1959 Atomic Energy Act. The Energy Department must submit its draft to the Federal Council, which must then consult the cantons (the components of the Swiss federation) about the revision before presenting the draft law to the Parliament, probably by the end of 1997. Parliamentary discussion will be in 1998 and 1999. One goal of the law will be to centralize and simplify

procedures for nuclear construction and operation and for waste disposal, placing more jurisdiction at the federal level.

### 2. Nuclear power and other fuel cycle activities

The Swiss nuclear power program has been in existence since the 1950s. Switzerland currently has no reactors under construction and is in the midst of a ten-year moratorium on nuclear power plant construction, scheduled to continue until at least the year 2000. After that, the future of the Swiss nuclear power industry will depend on a number of factors, including whether there is an energy deficit, how a future national energy program evolves, the feasibility of renewable fuel sources now being explored, and prevailing citizen sentiment. Switzerland has relied on nuclear power to supply approximately 39 percent of its electrical energy needs. Its nuclear power plant capacity, frozen since 1988, is expected to remain at 2.9 GWe until 2000. Switzerland's five operable power reactor units are described in Table 1, below.

**Table 1. Power Reactors**

| Station name | Status/Type | Capacity, MWe present gross (net) | Year of criticality |
|---|---|---|---|
| Leibstadt | operable/BWR | 1045 (990) | 1984 |
| Muehleberg | operable/BWR | 378 (355) | 1971 |
| Beznau 1 | operable/PWR | 364 (350) | 1969 |
| Beznau 2 | operable/PWR | 364 (350) | 1971 |
| Goesgen | operable/PWR | 990 (940) | 1979 |
| Graben | canceled/LWR | 1214 (1140) | n/a |
| Kaiseraugst | canceled/LWR | 1000 (950) | n/a |
| Verbois | canceled/LWR | 1000 (950) | n/a |
| Lucens | decommissioned/ GCHWR | 9 (9) | 1967 |

In addition to its power reactors, Switzerland has six research reactors. They are described in Table 2, below.

**Table 2. Research Reactors**

| Reactor name | Status/Type | Steady power (kW) | Application | Owner/ Operator | Year of criticality |
|---|---|---|---|---|---|
| AGN-201 P | operable/ homogen-eous | 0.02 | training | Geneva University | 1958 |
| AGN-211 P | operable/ homogen-eous | 2.000 | training | Institute for Physics | 1959 |
| Crocus | operable/ critical assembly | 0.001 | training | Nuclear Energy Laboratory | 1970 |
| Proteus | operable/ critical assembly | 1 | research | PSI (Paul Scherrer Institute) | 1968 |
| Diorit | shutdown/ tank | 30000 | research | PSI | 1960 |
| Saphir | shutdown/ pool | 10000 | research | PSI | 1957 |

Switzerland's nuclear facilities are limited to its research and power reactors. It neither has nor plans to build any facilities for enrichment, reprocessing, fuel fabrication, or any other fuel cycle activities. Switzerland would rely on the EURATOM countries for reprocessing of spent fuels and fabrication of plutonium into MOX fuel.

### 3. Peaceful nuclear cooperation with other states

In addition to the United States, Switzerland has bilateral agreements for peaceful nuclear cooperation with Canada, Egypt, Australia, China, and many Western European countries. Its wide-ranging international cooperation is undertaken in order to meet its energy needs, provide a basis for commercial export of nuclear equipment, and further its nuclear research activities. A certain level of transparency to international scrutiny is inherent in a peaceful nuclear cooperation program that involves such a large and diverse group of states. This transparency of its peaceful nuclear research and power programs underscores the peaceful intent of its nuclear activities. The bilateral agreements include provisions for IAEA safeguards, physical protection measures, and restrictions on the transfer of nuclear materials, which reflect Swiss nonproliferation commitments.

Switzerland maintains close ties to the rest of Europe, and is the European Union's third largest trading partner after the United States and Japan. Switzerland has been moving toward greater integration with the European Union, declaring European Union membership its "strategic goal." The series of bilateral peaceful nuclear cooperation agreements between the Swiss and individual European Union member states, including the United Kingdom, France, Belgium, and Sweden, is one measure of the importance that Switzerland attaches to maintaining close ties with its European neighbors and cooperative relationships in the nuclear field.

The Agreement on Cooperation in the Peaceful Uses of Nuclear Energy between France and Switzerland, concluded in 1988, is especially significant for implementation of the new Agreement with the United States. The Franco-Swiss Agreement covers cooperation on nuclear power production, fuel cycle operations, radioisotope production, scientific and technical research, and nuclear safety. Both parties agree to contribute to enhancing the safety of nuclear installations, to maintain IAEA safeguards, to ensure adequate physical protection measures, and to gain prior consent of the other Party for any retransfers to a third country. Similar provisions are found in the 1992 Agreement for Cooperation in the Peaceful Uses of Nuclear Energy between Belgium and Switzerland.

Of equal significance, the Swiss and French Governments have concluded an additional Agreement on Return of Plutonium, which entered into force on 5 December 1988. The Agreement established conditions for return to Switzerland of plutonium from the spent fuel reprocessed in France and subject to the 1988 Agreement for Cooperation.

### C. Legal basis for evaluation of the consents and approvals covered by this analysis

The legal framework for this analysis is found in sections 123.b., 127, 128, and 131 of the AEA. The proposed Swiss Agreement will be assessed under AEA criteria governing agreements for peaceful nuclear cooperation, as well as the criteria for subsequent arrangements implementing such agreements. The retransfer to Switzerland, pursuant to Article 8.1.(C.)(iii.) of the U.S.-EURATOM Agreement, of Swiss plutonium recovered by reprocessing (including plutonium fabricated in MOX fuel elements) also will be assessed under these provisions.

#### 1. Criterion for agreements for cooperation

Section 123.b. of the AEA requires the President to determine that performance of any proposed agreement for cooperation "will promote, and will not constitute an unreasonable risk to, the common defense and security." The Presidential determination will be completed before the agreement is submitted to the appropriate committees of the Senate and House of Representatives, and will become part of that submission.

### 2. Criteria for subsequent arrangements

Section 131 of the AEA authorizes the Secretary of Energy to enter into "subsequent arrangements" with respect to nuclear cooperation with other nations or groups of nations. Subsequent arrangements are entered into by agencies or departments of the United States Government, under the authority of the AEA, for various purposes including, *inter alia*, permitting the other party to an agreement for cooperation to engage in activities involving materials or equipment transferred from the United States, or nuclear material produced through the use of such material or equipment. Sections 131.a. and 131.b. of the AEA contain the legal criteria that must be met before the Secretary of Energy may approve subsequent arrangements.

#### a. "Common defense and security" criterion

Section 131.a.(1), which applies to all subsequent arrangements, requires the Secretary of Energy to determine in writing that the particular subsequent arrangement "is not inimical to the common defense and security."

#### b. "Significant risk of proliferation" criterion

Section 131.b. provides that the Secretary of Energy may not enter into a subsequent arrangement for reprocessing and retransfers for reprocessing of U.S.-obligated spent fuel, or subsequent retransfer to a non-nuclear-weapon state (NNWS) of plutonium (in quantities greater than 500 grams) resulting from such reprocessing "... unless, in [the Secretary's] judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested."

Section 131.b.(3) does not require these findings for approval of a subsequent arrangement permitting reprocessing in facilities which were operating before March 10, 1978, although it strongly encourages application of the same standards to those facilities.

### 3. Purpose of this analysis

This paper analyzes whether the consents and approvals in the proposed Agreement with Switzerland and the consent to EURATOM for retransfer of recovered Swiss plutonium to Switzerland meet the similar standards in section 123.b., i.e. that performance of any proposed agreement for cooperation "will promote, and will not constitute an unreasonable risk to, the common defense and security," and in section 131.a., that consents and approvals in subsequent arrangements "not be inimical to the common defense and security" of the United States. Finally, consents and approvals involving retransfers for reprocessing of U.S.-obligated spent fuel or subsequent retransfer of plutonium to Switzerland, a NNWS, are assessed under the "significant risk of proliferation" standard of AEA section 131.b.

It should be noted that this analysis considers both a subsequent arrangement (pursuant to Article 8.1.(C.)(iii.) of the EURATOM Agreement), and an agreement for cooperation (the Agreement between the United States and Switzerland). The latter is not a subsequent arrangement, and the AEA does not require that consents and approvals in the U.S.-Swiss Agreement for Cooperation meet the criteria in section 131. However, the consents and approvals in the Agreement would constitute subsequent arrangements if they had been processed separately from the Agreement for Cooperation. All these consents and approvals will therefore be evaluated under the substantive and procedural requirements of section 131. This approach will ensure that the appropriate agencies will have an opportunity to participate in the decision-making process leading to those evaluations.

**4. Miscellaneous statutory criteria**

With regard to specific substantive and procedural requirements, this approach has been implemented as follows:

- The requirement in section 131.a. that the Secretary of Energy determine that a subsequent arrangement "not be inimical to the common defense and security" will be fulfilled by the Secretary's approval of this document, which will also support the Secretary's recommendation that the President determine pursuant to section 123.b. that the Agreement for Cooperation "will promote, and will not constitute an unreasonable risk to, the common defense and security of the United States."

- The requirement in section 131.b. that subsequent arrangements for the retransfer of any U.S.-obligated material for reprocessing, for the reprocessing of any such material, or for the subsequent retransfer of any plutonium in quantities greater than 500 grams resulting from the reprocessing of any such material not take effect until the Secretary of Energy has provided the House International Relations and Senate Foreign Relations Committees "a report containing his reasons for entering into such arrangement and a period of 15 days of continuous session ... has elapsed" will be satisfied by following the procedures of section 123, which include a Presidential submittal of the proposed Agreement (together with associated documents, including a copy of this analysis) to those committees, for an aggregate waiting period before Congress of 90 continuous session days.

- The requirement in section 131.a. for public notice of the proposed subsequent arrangement (and the Secretary of Energy's finding that it is "not ... inimical to the common defense and security") through publication in the Federal Register will be satisfied by publication of the proposed Agreement and this analysis as a House document.

- The requirement in section 123.a. that the Director of the Arms Control and Disarmament Agency (ACDA) provide the President a Nuclear Proliferation Assessment Statement

also satisfies the Director's right, under section 131.a., to submit such an assessment on any subsequent arrangement that he determines might significantly contribute to proliferation.

- The requirement of section 123.a. that the Agreement for Cooperation has been submitted to the President jointly by the Secretary of State and the Secretary of Energy, after consultation with the Nuclear Regulatory Commission and the Director of ACDA, in accordance with AEA section 123.a. Section 131.a. requires similar coordination for subsequent arrangements, but also requires consultation with the Secretary of Defense. The proposed Agreement and supporting documents have therefore been reviewed by the Secretary of Defense.

- The requirement in section 131.b. that compels the Secretary of State and the Secretary of Energy to determine whether any subsequent arrangement authorizing reprocessing or retransfers for reprocessing of U.S.-obligated nuclear material or subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing would result in a significant increase in the risk of proliferation beyond that which exists at the time that approval is requested. The Secretaries of State and Energy have applied this standard to the subsequent arrangement giving long-term prior consent to EURATOM for retransfers of Swiss plutonium recovered by reprocessing of U.S.-obligated material to Switzerland and to the pertinent parts of the proposed Agreement with Switzerland, and they have determined that no significant risk of proliferation would be produced.

- Finally, it should be noted that the requirement that Congress have an opportunity to review the consents and approvals in the Agreement for Cooperation is granted through this approach. The AEA does not mandate formal Congressional review of consents and approvals in subsequent arrangements.

In summary, the consents and approvals contained in the proposed Agreement for Cooperation with Switzerland and in the subsequent arrangement giving long-term prior consent to EURATOM for retransfers of Swiss plutonium recovered by reprocessing of U.S.-obligated material to Switzerland, pursuant to Article 8.1.(C.)(iii.) of the U.S.-EURATOM Agreement, have been assessed and processed to meet all applicable procedural and substantive requirements in AEA sections 123 and 131.

### D. Advance consents and approvals by the United States

#### 1. Fuel cycle activities requiring U.S. consent or approval

In accordance with section 123.a. of the AEA, Articles 7 to 11 of the proposed U.S.-Swiss Agreement require U.S. consent or approval for certain nuclear fuel cycle activities.

**a. Retransfers**

Under Article 7, agreement of both parties is required for retransfer, outside of Swiss territory, of "nuclear material," "moderator material" or "equipment" transferred to Switzerland pursuant to the Agreement. Agreement of both parties is also required for retransfer of any "special fissionable material" produced through the use of "nuclear material," "moderator material" or "equipment" transferred to Switzerland pursuant to the Agreement.

Article 1 defines "nuclear material," "special fissionable material," "source material," "moderator material" and "equipment," and also provides for other items to be included in these categories by agreement of the parties. Under the Agreement, nuclear material means any source material or special fissionable material. Source material is in turn defined to include depleted uranium, natural uranium and thorium. Special fissionable material includes plutonium, uranium 233 or uranium enriched in the isotope 233 or 235. Moderator material means deuterium, heavy water and nuclear grade graphite as defined in the Guidelines for Nuclear Transfer of the Nuclear Suppliers Group.

Equipment means the following, under Article 1(c):

- Any reactor as a complete unit (except reactors designed or used primarily for the production of plutonium or uranium 233);
- Reactor pressure vessels, as complete units or as major shop-fabricated parts therefore, which are especially designed or prepared to contain the core of a reactor and are capable of withstanding the operating pressure of the primary coolant;
- Reactor fuel charging and discharging machines as complete units, and manipulative equipment designed or prepared for inserting or removing fuel in a reactor capable of on-load operation;
- Complete reactor control rod systems, including the control rod drive mechanism especially designed or prepared for the control of the reaction rate in a reactor; and
- Reactor primary coolant pumps especially designed or prepared for circulating the primary coolant of a reactor.
- Any other item so designated jointly by the parties to the Agreement.

Excluding plutonium and uranium 233 production reactors from the definition of equipment has the effect of preventing production reactors from being transferred to Switzerland pursuant to Article 6 of the Agreement.

**b. Enrichment of uranium**

Article 8 of the Agreement deals with enrichment of uranium transferred pursuant to the Agreement or used in or produced through use of equipment so transferred. Such uranium may not be enriched to 20% or more U-235 unless the United States agrees.

**c. Reprocessing**

Article 9 prohibits reprocessing of nuclear material transferred pursuant to the Agreement, and the reprocessing of nuclear material used in or produced through the use of nuclear material, moderator material or equipment so transferred, unless both parties agree.

**d. Alteration in form or content**

"Alteration in form or content" is defined in Article 1 as conversion of plutonium, high enriched uranium or uranium 233, or fabrication of fuel containing plutonium, high enriched uranium or uranium 233. For purposes of this Agreement, the term does not include post-irradiation examination involving chemical dissolution or separation; disassembly or reassembly of fuel assemblies; or irradiation, reprocessing or enrichment of nuclear material.

Article 10 prohibits, unless the parties agree otherwise, alteration in form or content of plutonium, uranium 233, high enriched uranium (consisting of 20% or more U-235) or irradiated nuclear material transferred pursuant to the Agreement. It also prohibits, unless the parties agree otherwise, the alteration in form or content of plutonium, uranium 233, high enriched uranium or irradiated nuclear material used in or produced through the use of nuclear material, moderator material or equipment transferred pursuant to the Agreement.

**e. Storage facilities**

Under Article 11, plutonium or uranium 233 or high enriched uranium (consisting of 20 % or more U-235), except that contained in irradiated fuel elements, transferred pursuant to the Agreement or used in or produced through the use of any nuclear material, moderator material, or equipment so transferred may only be stored in facilities to which both parties agree, as listed in Annexes 3 and 4 to the Agreed Minute. Switzerland may make additions to Annexes 3 and 4, listing Swiss facilities eligible to store U.S.-obligated HEU, plutonium, and U-233, by notice to the United States. Such notices will include specific assurances from the Swiss government to ensure that the additional facilities meet the standards required by U.S. law.

**2. Specific consents and approvals by the United States**

Article 12 states that the parties will, by an agreed minute, provide the consents required by Articles 7, 9, 10 and 11 on a "long-term, predictable and reliable basis." The Agreed Minute accords Switzerland two broad types of consent.

**a. Retransfers to specified states and groups of states**

The United States has agreed to the retransfer of source material, low enriched uranium (less than 20% U-235), moderator material and equipment to states and groups of states listed in Annex 1 to the Agreed Minute. EURATOM is the group of states of primary interest to Switzerland, which shares common borders with several EURATOM members. Switzerland is a major trading partner with the European Union, of which EURATOM is one of the components. The United States has expressly retained the right to add states to or delete them from this list, temporarily or permanently. The United States has not given prior consent for retransfers of natural or low enriched uranium for the purpose of enrichment to 20% or more U-235.

Consent to retransfers is subject to the following conditions:

- The United States must be promptly notified of each transfer, and the Swiss Government will keep records of all transfers;
- Prior to each transfer, the Swiss Government will confirm to the United States that the commodities transferred will be subject to an agreement for cooperation in force between the receiving state or group of states and the United States; and
- Switzerland shall inform the United States upon the return of any transferred commodities to Switzerland.

**b. Retransfers to listed facilities for specified purposes, and return to Switzerland**

The United States consents to the retransfer out of Switzerland of nuclear material for reprocessing, storage or alteration in form or content, but only at facilities listed in Annex 2 to the Agreed Minute. Facilities may be added to Annex 2 only by agreement of the parties.

These consents are primarily intended to allow Switzerland to engage in the following related transactions:

- sending U.S.-obligated spent fuel to EURATOM for reprocessing in France or the United Kingdom;
- fabrication in EURATOM of mixed-oxide (MOX)reactor fuel from the extracted plutonium; and
- return of the MOX for use in Switzerland.

The Agreement does not provide long-term consent for reprocessing or MOX fabrication in Switzerland. Under paragraph (G) of the Agreed Minute these activities, if ever contemplated by Switzerland, would require additional agreement by both the Parties. Paragraph (G) provides as follows:

> The Parties hereby agree that in the event either Party wishes to carry out activities within its own jurisdiction in addition to those covered under paragraphs (A) through (E) pursuant to an advance, long-term consent as provided under Article 12 paragraph 1, such consent may be granted by agreement of the Parties.

When the U.S.-Swiss Agreement for Cooperation enters into force the United States intends to grant long-term prior consent to EURATOM, pursuant to Article 8.1.(C.)(iii.) of the U.S.-EURATOM Agreement for Cooperation, for retransfers of Swiss plutonium recovered by reprocessing, subject to the U.S.-EURATOM Agreement, to Switzerland for use in that country's peaceful nuclear program. The consent in the U.S.-Swiss Agreement is subject to the following conditions:

- Switzerland will keep records and annually account to the United States the type, quantity, location and form of material retransferred under this consent.
- Prior to any transfer of nuclear material, the Swiss Government will confirm that the material will be held by the recipient under an agreement for cooperation with the United States.
- No later than 60 days prior to any shipment of plutonium back to Switzerland, the Swiss Government will notify the United States in writing that international transport arrangements meet International Atomic Energy Agency standards for physical protection in section 6 of INFCIRC/225/Rev.3, (including use of armed escorts or guards), and are consistent with the provisions of the Convention on the Physical Protection of Nuclear Material.
- Any plutonium returned to Switzerland will be used only in facilities listed in Annex 3 to the Agreed Minute.

Under Article 11, plutonium or uranium 233 (except that contained in irradiated fuel elements) or high enriched uranium (consisting of 20 % or more U-235) transferred pursuant to the Agreement or used in or produced through the use of any nuclear material, moderator material, or equipment so transferred may only be stored in facilities to which both parties agree, as listed in Annexes 3 and 4 to the Agreed Minute.

The Swiss Government may add facilities to Annexes 3 and 4 by notice to the United States. This notice must confirm that safeguards arrangements for the new facility have been agreed upon between Switzerland and the IAEA, that those arrangements will permit the IAEA to

exercise its safeguards rights in such a way as to meet its objectives and inspection goal, and that the physical protection standards in Article 4 of the Agreement will be applied.

### 3. Suspension and termination of advance consents

Article 13 provides that the advance consents referred to in Article 12 may be terminated or suspended, "in whole or in part," by either party on the basis of objective evidence that their continuation would entail a serious threat to the security of either Switzerland or the United States, or a significant increase in the risk of nuclear proliferation, resulting from a situation of "the same or greater degree of seriousness" as the following:

- Switzerland detonates a nuclear weapon or any other nuclear explosive device;
- the United States detonates a nuclear weapon or any other nuclear explosive device using any item subject to the Agreement;
- a party materially violates, terminates or declares itself not to be bound by the Nuclear Non-Proliferation Treaty (NPT), the relevant safeguards agreement with the International Atomic Energy Agency (IAEA) or the Nuclear Suppliers Group guidelines for nuclear transfers;
- a party retransfers an item subject to the Agreement to a non-nuclear weapon state which has not concluded a full-scope safeguards agreement with the IAEA;
- a party is subject to measures taken by the IAEA Board of Governors for noncompliance with the relevant safeguards agreement; or
- acts of war or serious internal disturbances preventing the maintenance of law and order, or serious international tension constituting a threat of war, that threaten severely and directly the safeguarding or physical protection of activities on the territory of either party.

Article 13 contains several provisions further emphasizing the importance and seriousness of a decision to suspend or terminate advance consents. Paragraph 2 of Article 13 calls for either party, in considering whether objective evidence of such conditions may exist, to consult "at the Federal Council level for Switzerland and at the Cabinet level for the United States" before reaching any decision. For the United States, "[a]ny such decision that such objective evidence does exist and that activities referred to in Articles 7, 9, 10 and 11 ... should therefore be suspended, shall be taken only ... by the President of the United States."

A decision to suspend or terminate advance consents is not to be based on actions by governments of third countries, or other events beyond the territorial jurisdictions of Switzerland and the United States, unless such actions or events would clearly result in a significant increase

in the risk of nuclear proliferation or in a serious threat to the security of the United States. A decision by the United States to invoke the suspension provision is to be taken only in the most extreme circumstances of exceptional concern from a nonproliferation or security point of view and is to be applied for the minimum duration. The United States is called upon to keep the development of the situation which led to its decision under review and to withdraw the suspension as soon as warranted.

The provisions for suspension of advance consents in the U.S.-Swiss Agreement are similar to those in the Agreed Minute to the U.S.-EURATOM Agreement for Cooperation of November 7, 1995. The U.S.-EURATOM Agreement was found by the President to promote, and not constitute an unreasonable risk to, the common defense and security, and by the Secretaries of Energy and State to not be inimical to the common defense and security. Article 13, allows suspension or termination of advance consents "in whole or in part." In the event that objective evidence existed justifying U.S. suspension of cooperation, the U.S.-Swiss Agreement would allow suspension "in part" of U.S. consents, without requiring that all other consents be suspended.

## III. SOME BASIC ELEMENTS OF THE EVALUATION

### A. Safeguards

Section 123.a. of the AEA requires that any new agreement for cooperation include the following provisions on safeguards:

- a guarantee by the cooperating party that safeguards as set forth in the Agreement for Cooperation will be maintained with respect to all nuclear material and equipment transferred pursuant thereto, and with respect to all special nuclear material used in or produced through the use of such material and equipment, so long as the material and equipment remain under the jurisdiction of the cooperating party...

- in the case of non-nuclear-weapon states, a requirement, as a condition of continued United States nuclear supply under the Agreement for Cooperation that IAEA safeguards be maintained with respect to all nuclear materials in all peaceful nuclear activities within the territory of such state, under its jurisdiction, or carried out under its control anywhere.

The extent to which these requirements are fulfilled is key to a determination by the U.S. Secretary of Energy that the activities for which consents and approvals are provided for in the Agreement "will not be inimical to the common defense and security" of the United States as well as the determination by the President that the performance of the Agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security."

#### 1. Safeguards in Switzerland

Article 5 of the proposed Agreement for Cooperation provides for the application of safeguards by the IAEA, and for alternative safeguards if the IAEA is unable to apply its safeguards. Under paragraph 1 of Article III of the NPT, Switzerland, as a non-nuclear-weapon state party, is obligated to accept IAEA safeguards "on all source and special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere." To meet this obligation, a September 1978 agreement between Switzerland and the IAEA provides for the application of safeguards in connection with the NPT (published by the Agency as document INFCIRC/264). Nuclear material transferred to Switzerland under the proposed agreement, and any nuclear material used in or produced through the use of any nuclear material, moderator material or equipment transferred under the Agreement must be subject to safeguards in accordance with INFCIRC/264.

If the United States and Switzerland become aware of circumstances which demonstrate that the Agency is not or will not be applying appropriate safeguards, the parties shall immediately enter into arrangements which conform with Agency safeguards principles and procedures and to the required coverage, and which provide assurance equivalent to that intended to be secured by the

system they replace. These arrangements shall be effected by agreement providing for application by the IAEA, or, if either party considers the Agency unable to apply such safeguards, under bilateral arrangements.

**2. Safeguards on facilities covered by approvals outside of Switzerland**

Any arrangements between Switzerland and any EURATOM Member State, whereby the Swiss send U.S.-obligated nuclear material to EURATOM members for reprocessing, fabrication, or other purposes, would require the nuclear material to be covered by the U.S.-EURATOM Agreement for Cooperation, which provides for appropriate safeguards.

**B. Physical security**

According to Article 4 of the proposed Agreement, each party is required to take measures to ensure, within its jurisdiction, physical protection of nuclear material transferred pursuant to the Agreement and any nuclear material used in or produced through the use of nuclear material, moderator material or equipment transferred pursuant to the Agreement and apply criteria in accordance with levels of physical protection at least equivalent to those set out in IAEA document INFCIRC/225/Rev.3.

As noted above, Switzerland has been party to the Convention on the Physical Protection of Nuclear Material since January 1987. In addition, its bilateral nuclear cooperation agreements make special provision for physical protection. The Swiss 1988 Agreement with France, e.g., states that adequate physical protection measures must be applied to nuclear materials and equipment covered by the Agreement, on the basis of IAEA document INFCIRC/225. The 1992 Swiss-Belgian Agreement for Cooperation also contains provisions requiring the application of physical protection measures to nuclear materials.

These obligations reinforce Switzerland's commitment to the United States to meet international physical security standards. Any physical security lapse on the part of the Swiss government could create difficulties not only with the United States, but also with its EURATOM trading partners.

**C. Export controls**

The establishment and maintenance of adequate and effective export control legislation is a key indicator of the seriousness of a country's commitment to nonproliferation.

According to the original 1959 Swiss Atomic Energy Act, the export of nuclear material is forbidden whenever contrary to the public interest. The "nonproliferation of nuclear weapons" is one of the licensing criteria laid down by the 1959 Act. The Atomic Energy Act is implemented by an Ordinance of the Federal Council, the current version dating to 1984. Since 1978, this Ordinance has required any proposed export of nuclear equipment or products to be considered

in light of the Nuclear Suppliers Group Guidelines on nuclear transfers, in addition to internal legislation. A 1987 amendment to the Act and the Ordinance allows the Swiss Government to regulate exports of techlognoly.

Another 1987 amendment to the 1984 Ordinance requires a two stage procedure to authorize the export of fissile material and nuclear equipment. First the import and export branch of the Trade Division of the Federal Department of Public Economy would consider the license application, and, if the Division approved, the application would then be jointly assessed by the Federal Energy Office, the Federal Foreign Affairs Department and the Federal Office of External Economic Affairs.

As with other Western industrialized countries, Switzerland reexamined its nuclear and dual-use export control laws following the Persian Gulf War. In 1991, the Swiss Federal Executive Council ruled that future nuclear exports to non-nuclear weapon states, including materials and equipment that could be used for nuclear weapons, would be permitted only to those countries adhering to full-scope IAEA safeguards.

A decision by the Swiss parliament late in 1995 further tightened nuclear export controls. As of 1 December 1995, violators of Swiss export control law will be subject to greater criminal penalties. Rather than a maximum penalty of up to 20,000 Swiss francs (as was previously the law), the new law allows for a maximum penalty of up to ten years in prison and a fine of up to SF 1 million. For the first time, the new law covers the activities of Swiss citizens outside of Switzerland, if the country from which an item was exported does not prosecute.

Also in 1995, both houses of the Swiss Parliament approved a change in the 1959 Atomic Energy Act with respect to licensing requirements. Heretofore, licenses from the federal government were required for the import and export of nuclear materials. The revised law requires that any agent or intermediary, including lawyers or trust companies, involved in any nuclear transaction, whether in fuels, small reactor parts or other equipment, must also obtain a license, even in cases where nuclear materials are never in Swiss territory.

### D. Approach to evaluation in light of statutory criteria

In Sections IV and V below, the U.S.-Swiss Agreement (including the Agreed Minute), and the subsequent arrangement with EURATOM (allowing retransfers to Switzerland of Swiss plutonium recovered by reprocessing) are reviewed from two overall perspectives.

- First, with reference to approvals involving retransfers for reprocessing or retransfers of plutonium in excess of 500 grams, this analysis assesses whether the granting of advance approval would result in a significant increase of the risk of proliferation beyond that which exists at the present time, under the criteria in AEA section 131.b.

- **Second, this analysis assesses the impact of the Agreement on the common defense and security, in light of the criterion in AEA section 123.b. that the Agreement promote, and not constitute an unreasonable risk to, the common defense and security, and the criterion in AEA section 131.a. that the activities permitted by the consents and approvals not be inimical to the common defense and security.**

## IV. EVALUATION OF APPROVALS FOR WHICH THE CRITERIA IN AEA SECTION 131.b. AND THE EURATOM AGREED MINUTE ARE RELEVANT

### A. Activities subject to analysis: Retransfers for Reprocessing and Retransfers of Plutonium

The criteria in section 131.b.(2.) apply to two types of activities covered by this analysis:

- retransfers of spent fuel for reprocessing; and
- retransfers to a non-nuclear weapon state of plutonium extracted from reprocessing in quantities greater than 500 grams.

#### 1. "Risk of proliferation"

The fundamental question under section 131.b. is whether the retransfer for reprocessing or retransfer of plutonium might give rise to "a significant increase of the risk of proliferation." Subsection (2) specifically refers to "all the factors in making this judgment," a phrase suggesting that the Secretaries of Energy and State are to engage in a broad-ranging inquiry, considering all relevant aspects of the specific situation. Among these are the technical capabilities of the states concerned, their possible motives for seeking nuclear weapons, their national security situations, their domestic institutions, their historic commitments to nonproliferation, and the presence of international safeguards. Finally, the subsection directs that foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device.

A broad range of technical, political, and other factors, including safeguards and physical protection measures, are relevant to anticipating or detecting diversion and in making this assessment.

#### 2. Reprocessing and Retransfers for Reprocessing

Switzerland does not plan to develop its own reprocessing and fuel fabrication capabilities, and the Agreed Minute does not give Switzerland advance consent to reprocess U.S.-obligated nuclear material or alter it in form or content within Switzerland. Under Articles 9 and 10 of the Agreement, implementing any change in these plans would require the consent of the United States.

Switzerland does plan to send spent power reactor fuel to France, and the United Kingdom, for reprocessing, after which the recovered plutonium could be incorporated into MOX fuel and returned to Switzerland, to be burned in Swiss power reactors. In the Agreed Minute, the United

States has agreed that U.S.-obligated nuclear material may be transferred to specified facilities within EURATOM for reprocessing and alteration in form and content. These facilities are listed in Attachment 2 to the Agreed Minute, and additional facilities may be added to this list only with United States agreement. This analysis will examine the nonproliferation implications of reprocessing Swiss spent fuel outside Switzerland in these agreed facilities.

Subsections 131.b.(2.) and 131.b.(3.) of the AEA draw a distinction between facilities that have reprocessed power reactor fuel assemblies prior to March 10, 1978, and those that have not. These subsections apply a stricter standard to U.S. approval of reprocessing in plants that began operation after that date. If Swiss spent fuel were sent to the COGEMA facility in France, it might be reprocessed in the UP-3 and the UP-2 plants which began operation after 1978. French facilities at Marcoule are also in this category. If sent to the United Kingdom, U.S.-obligated spent fuel from Switzerland might be reprocessed in the THORP facility which began operation in 1994 at the Windscale site or at the post-1978 Dounreay site. This analysis therefore utilizes the stricter standards for post-1978 plants in AEA subsection 131.b.(2.) in assessing risk of proliferation.

### 3. Plutonium return to Switzerland: A Subsequent Arrangement to the Cooperation Agreement with EURATOM

During reprocessing and alteration into MOX fuel, U.S.-obligated nuclear material from Switzerland will be in EURATOM territory and subject to the new Agreement for Cooperation between the United States and EURATOM. Article 8.1(C)(iii) of that U.S.-EURATOM Agreement, and paragraph 3 of the Agreed Minute thereto, permit the retransfer of U.S.-obligated plutonium outside of EURATOM to countries designated on a list to be provided by the United States.

While it has not provided such a list, the United States has presented a side letter (No. 44, November 7, 1995) to the European Commission referring "in particular to Article 8.1(C)(iii)." This side letter confirmed that the United States was then negotiating a new peaceful nuclear cooperation agreement with Switzerland, and contained the following commitment:

> The United States is also prepared, in connection with a new peaceful nuclear cooperation agreement with the Swiss Federation, to offer long-term prior consent to Euratom to the retransfer of Swiss plutonium, including such plutonium contained in MOX fuel elements, subject to the U.S.-Euratom Agreement, to Switzerland for use in that country's peaceful nuclear program.

Moreover, the Agreed Minute to the new U.S.-Swiss Agreement contains the following obligatory language:

> In the case of irradiated nuclear material, subject to the Agreement, retransferred by Switzerland, the United States of America hereby agrees to give its consent,

under the applicable agreement for cooperation, to the return to Switzerland of nuclear material recovered from that nuclear material so retransferred.

Simultaneous with entry into force of the new U.S.-Swiss Agreement, the United States will give to EURATOM its consent to retransfer to Switzerland from EURATOM U.S. obligated plutonium recovered from Swiss spent fuel by providing a list consisting of one country, Switzerland. The EURATOM Agreed Minute lists the following five criteria that Switzerland has to meet for inclusion on such a list:

- Third countries must have made an effective non-proliferation commitment, normally by being party to, and in full respect of their obligations under the Non-Proliferation Treaty ... and by being in compliance with the conditions of INFCIRC 254/Rev 1/Part 1;

- In the case of retransfer of items obligated to the United States from the territory of the Member States of the Community, third countries must be party to a nuclear cooperation agreement with the United States;

- Consistency of the proposed action with the guidelines contained in IAEA document INFCIRC 225/Rev 3 and with the provisions of IAEA document INFCIRC 274/Rev 1, as they may be revised and accepted by the Parties and the Member States;

- The nature and content of the peaceful nuclear programs of the third country in question; and

- The potential proliferation and security implications of the transfer for either Party or a Member State of the Community.

This analysis and associated statutory determinations constitute the subsequent arrangement required for the United States to grant EURATOM, pursuant to the Agreed Minute to the U.S.-EURATOM Agreement, its consent for such retransfers to Switzerland. Therefore, this analysis also addresses the proliferation risks entailed in return of plutonium to Switzerland, as required by AEA section 131.b.

**B. Reprocessing outside Switzerland**

The Agreement provides for the transfer of U.S.-obligated spent fuel from Switzerland to EURATOM. While within EURATOM, the U.S.-obligated spent fuel will be subject to the U.S.-EURATOM Agreement. The U.S.-EURATOM Agreement (Article 8.2 (A) and (B) provides advance, long-term U.S. consent to EURATOM for the reprocessing and alteration in form or content of all nuclear material subject to that Agreement at the facilities listed in Annex A of that Agreement.

The section 131.b. risk analysis submitted to Congress with that Agreement considered all circumstances, including application of EURATOM and IAEA safeguards, relevant to the reprocessing and fabrication into MOX of U.S.-obligated nuclear material. That analysis concluded that advance U.S. consent to such activities would not result in a significant increase in the risk of proliferation, giving foremost consideration to conditions ensuring timely warning of diversion. This conclusion would necessarily apply to reprocessing and fabrication into MOX of U.S.-obligated nuclear material from Switzerland. The reasons behind this conclusion include the following:

- Lack of any credible motive for the non-nuclear weapon member states of EURATOM to acquire nuclear weapons;
- The strong motivation of the two nuclear weapon state members of EURATOM to prevent proliferation within that Community;
- The application of EURATOM and IAEA safeguards to U.S.-obligated material while it is in EURATOM territory;
- The difficulty of maintaining a clandestine and illegal nuclear weapons program in peacetime under any of the highly democratic governments of Western Europe;
- The transparency provided by international peaceful nuclear cooperation; and
- The nonproliferation credentials of EURATOM and its member states.

### C. Retransfer of recovered plutonium to Switzerland

#### 1. Timely warning

As noted above, a broad range of technical, political, and other factors, including safeguards and physical protection, are relevant in anticipating or detecting diversion, and may be considered in assessing whether timely warning would exist in a particular situation. There are a number of direct indicators of possible diversion that are relevant to whether there would be timely warning in the case of consents of the type addressed by section 131.b.(2.). These indicators include:

##### a. Safeguards

Switzerland has been a non-nuclear weapon state party to the Non-Proliferation Treaty since 1977. In accordance with Article III of that Treaty, IAEA safeguards are applied to all nuclear material in its peaceful nuclear activities.

### b. Visibility of a nuclear weapons program

Switzerland is an industrialized country with advanced technical capabilities and scientific resources. It is a small state (population 7 million) for which a clandestine nuclear weapons program would require the mobilization of limited technical resources, and their organization to meet specific weapons design, development, and manufacturing requirements. Reassignments of scientists and engineers to weapons-related activities, or the establishment of dedicated working groups, could provide indicators that a nuclear weapons program had begun or was being organized.

The Swiss nuclear power program has been essentially stable for the last ten years. Switzerland has no indigenous reprocessing capability, with the exception of hot cells at the PSI. For any clandestine plutonium weapons program to advance beyond the stage of laboratory research, Switzerland would require creation of secret facilities to chemically separate plutonium from unirradiated MOX fuel or reprocess irradiated fuel.

A plutonium-based nuclear explosive design, fabrication, and testing effort would involve activities that are highly complex and susceptible to detection. Classified technologies necessary for the purpose of producing both a first operational nuclear explosive device and a modest nuclear weapons stockpile would require acquisition of unique equipment and production facilities (e.g., gas krytron tubes, certain types of flash x-ray generators, and specialized instrumentation for hydrodynamic testing). These items, some of which have few, if any, known peaceful uses, would either have to be obtained abroad or developed through dedicated efforts. Indication that such procurement activity was underway by a Swiss company or government agency, as well as the disappearance from open research of key Swiss scientists and engineers, could help provide timely warning that diversion of safeguarded plutonium may have occurred or be imminent.

### c. Political indicators of diversion

A decision by the Swiss Government to seek nuclear weapons, thereby violating its safeguards obligations to the IAEA, its obligations under the Non-Proliferation Treaty, and its Agreement for Cooperation with the United States, would be possible only as a result of radical changes in Switzerland's international situation and internal politics.

Swiss foreign policy has always taken its international obligations very seriously. This is understandable for a small country whose neutrality has been guaranteed by international agreement since 1815. The importance attached to treaty obligations lies behind Swiss rejection of United Nations membership and its nine-year delay in ratifying the Non-Proliferation Treaty.

As a major financial and commercial center, Switzerland's prosperity depends on its national reputation for reliability. The unilateral and multilateral economic sanctions that would probably

accompany discovery of an illicit nuclear weapons program would threaten disaster to the Swiss economy.

Only the most dire threat to its national security could, therefore, induce the Swiss to embark on such a course. No such threat exists now or is foreseeable. For forty years, the Swiss military regarded the Warsaw Pact as the principal threat to Swiss security, but this threat, now removed, never caused them to seek nuclear weapons.

**d. Transparency role of democratic institutions**

It would probably be very difficult for the Swiss Government to keep secret a decision to seek nuclear weapons. Democratic traditions go further back in Swiss history than in any other European country. The lower house of Parliament is elected using a system of proportional representation that ensures the representation of anti-military and environmental parties who would almost certainly oppose any nuclear weapons program, even one that did not violate a broad range of treaty obligations. Democratic institutions in Switzerland therefore increase the likelihood that the United States would receive timely warning of any situation that might lead to diversion of plutonium.

**e. Role of international cooperation**

Switzerland's dependence on EURATOM for essential fuel cycle services would be another impediment to any clandestine attempt to divert plutonium from its civil program. Switzerland has peaceful nuclear cooperation agreements in force with Belgium (1992), France (1988) and the United Kingdom (1964). All limit cooperation to peaceful purposes. The two most recent agreements also require IAEA safeguards on transferred nuclear material and the application of IAEA INFCIRC/225 physical protection standards. Any Swiss diversion of U.S.-obligated plutonium in MOX fuel would also violate these agreements.

**2. Other factors considered in assessing proliferation risk**

**a. Motives for proliferation**

Absent a new security threat of major proportions, there is no credible motive for the Swiss Government to seek nuclear weapons. Since 1815, Swiss defense doctrine has had the single goal of preserving Swiss neutrality by making the apparent cost of invasion disproportionate to the advantage an invader would gain. This deterrent effect has been successful in all European wars since 1815, when the principle of Swiss neutrality became a part of European international law in the Second Treaty of Paris. In this century, the Swiss have successfully maintained their neutrality in two World Wars and the Cold War. Given their unique geography, conventional deterrence has worked well for the Swiss, and a nuclear capability would do little to increase the security of Swiss territory in the current international environment.

In 1966, the Federal Council, with the approval of parliament, developed the current concept of national defense. The Council concluded that the primary task of Swiss defense measures, particularly of the army, is to protect the freedom and independence of the country for as long as possible without war through its presence and its military defense capabilities. No foreign military forces are allowed to enter Swiss territory or air space. It is significant that, even before conclusion of the Non-Proliferation Treaty, this fundamental review of Swiss military doctrine found no role for a Swiss nuclear weapons capability.

Swiss national defense is based on historical experience and a military preparedness that are deeply rooted in Swiss culture. The first federal pact of perpetual alliance in the covenant of 1291 was a military pact in which the members of the alliance promised to provide mutual assistance against any foreign and domestic threats. The same concept of a common defense against threats from outside the country is in Article 2 of the Swiss Constitution. Article 2 designates the defense of freedom and independence against foreign threats (national defense) and the maintenance of domestic law and order (State security) as the primary responsibilities of the Swiss Confederation. While the principle of compulsory military service gained importance in the other European countries only at the time of the French Revolution, the tradition in Switzerland extends back into the Middle Ages.

Every qualified male is required to begin national service at age 20 for 17 weeks of training. When he is released, he remains attached to a unit and is eligible for call-up until the age of 32. From ages 33 to 50 (55 for officers), he is in the military reserves and must attend three two-week courses over the following ten years. During this period, he keeps a rifle, ammunition and kit at home, and is required to attend target practice sessions. The Federal Council controls the Army, and a general is appointed Commander-in-Chief of the armed forces only in times of a national emergency. Over the past 40 years, Switzerland has created a national infrastructure in the event of foreign aggression against the country. Underground shelters, emergency hospitals, and air-raid capacity for new buildings are some of the recent developments intended to repel an attack.

Of course, in an atomic age deterrence by an army which is not equipped with nuclear weapons may be less effective than it was in the era of conventional wars, especially against a nuclear-armed potential foe. No nuclear threat against Switzerland now exists or is foreseeable, however. Indeed, possession of nuclear weapons could undercut Swiss security by giving that country an unneeded power projection capability. A nuclear-armed Switzerland might well be viewed as a regional threat by other powers, thus provoking an attack that would never be made against a conventionally armed Switzerland.

**b. Commitment to nonproliferation**

Switzerland's commitment to nonproliferation of nuclear weapons has diverse roots. On a commercial level, Switzerland has taken an active role promoting the peaceful uses of nuclear energy, and supports nonproliferation norms as a necessary basis for legitimate nuclear

commerce. In 1956, Switzerland concluded one of the first peaceful nuclear cooperation agreements with the United States, and was an early member of the IAEA. It ratified the Non-Proliferation Treaty in 1977 and joined the Nuclear Suppliers Group in 1978. In 1991, the Federal Council adopted a policy of requiring full-scope safeguards for nuclear exports. Switzerland adheres to the 1992 Nuclear Suppliers Group Guidelines on dual-use transfers, and the 1992 Group policy requiring full-scope safeguards as a condition of nuclear supply.

Although Switzerland was not a member of the Eighteen Nation Disarmament Committee that negotiated the Non-Proliferation Treaty, it monitored the negotiations and offered significant comments dealing with peaceful nuclear trade. It ratified the Treaty in 1977.

Switzerland has enacted legislation to carry out its international nonproliferation obligations in the form of its Atomic Energy Act of 1959 and the 1984 Ordinance of the Federal Council implementing the Act. These have been periodically updated to meet new situations, most notably in 1986 and 1987 to improve control of technology transfers.

### D. Conclusions on relevant criteria in AEA section 131.b

#### 1. Timely warning

When all the relevant facts and circumstances are taken into account, it is highly probable that the United States would receive timely warning of any diversion of U.S.-obligated plutonium in Switzerland. Factors leading to this conclusion include the following:

- the long-standing establishment of full-scope IAEA safeguards in Switzerland;
- the difficulty of totally concealing a clandestine weapons program in the democratic Swiss culture, in light of the need to concentrate the technical resources of that small country in any bomb program;
- the difficulty of concealing diversion from its European neighbors and nuclear trading partners; and
- the probability that any Swiss nuclear weapons program would be pursued only in response to a new and very serious security threat.

In summary, there is every reason to believe that the United States would receive timely warning of an attempted diversion of plutonium subject to the agreement, or a situation likely to lead to such an attempt, well in advance of the time at which Switzerland could transform it into a nuclear explosive device.

### 2. Proliferation risk

The provisions of the proposed Agreement granting long-term U.S. consent to retransfers for reprocessing of Swiss spent fuel in EURATOM and to the subsequent retransfer of plutonium to Switzerland would not increase the risk of proliferation. Factors taken into account in reaching this conclusion, called for in section 131.b.(2.) of the AEA, include the following:

- the likelihood of timely warning of plutonium diversion, or a situation likely to lead to such an attempt, as discussed immediately above;
- Switzerland's well-established commitment to non-proliferation norms, for policy, legal and commercial reasons; and
- the lack of any credible security or other motive for the Swiss Government to seek nuclear weapons.

Therefore, it is the judgment of the Department of Energy that granting the advance long-term consents and approvals in the Swiss Agreement and consent to EURATOM to retransfer recovered plutonium to Switzerland in MOX fuel elements will not result in a significant increase of the risk of proliferation beyond that which now exists.

## E. Conclusions on the criteria for retransfer in the Agreed Minute to the U.S.-EURATOM Agreement

The above conclusions, with supporting discussion, are also pertinent to the five criteria for programmatic consent to retransfers under the Agreed Minute to the EURATOM Agreement.

### 1. Third countries must have made effective non-proliferation commitments

Switzerland has made and kept such commitments as a party to the NPT. It has adhered to the Nuclear Suppliers Group guidelines for nuclear transfers (INFCIRC 254/Rev. 2/Part 1) since 1976.

### 2. Third countries must be party to a nuclear cooperation agreement with the United States

This criterion is met by the new U.S.-Swiss agreement under analysis in this document.

**3. Consistency of the proposed action with the guidelines contained in IAEA document INFCIRC 225/Rev 3 and with the provisions of IAEA document INFCIRC 274/Rev 1**

The new U.S.-Swiss agreement adopts INFCIRC/225, as revised and updated, as the appropriate standard for physical protection of nuclear material. Switzerland's nuclear cooperation agreements with France and Belgium also require application of INFCIRC/225 physical protection standards. Switzerland is a party to the Convention on Physical Protection of Nuclear Material (INFCIRC 274/Rev. 1).

**4. The nature and content of the peaceful nuclear programs of the third country in question**

As the above discussion suggests, the nuclear program of Switzerland is entirely peaceful. While Switzerland plans to make civil use of plutonium in the form of MOX fuel, it has no plans to develop an indigenous reprocessing capability.

**5. The potential proliferation and security implications of the transfer for either Party or a Member State of the Community**

As concluded above, retransfer of MOX fuel from EURATOM to Switzerland will not result in a significant increase in the risk of proliferation. The security implications of the retransfer are discussed in section V, below.

## V. BASIS FOR FINDINGS WITH RESPECT TO COMMON DEFENSE AND SECURITY (AEA SECTIONS 123.b. AND 131.a.)

This analysis now turns to the question of whether the Swiss Agreement and the plutonium retransfer consent to EURATOM will have a negative impact on U.S. national security. As noted previously, to approve a subsequent arrangement subject to section 131 of the AEA, the Secretary of Energy must determine that the arrangement will "not be inimical to the common defense and security." To approve and authorize the execution of an agreement for cooperation, the President must determine that its performance "will promote, and not constitute an unreasonable risk to, the common defense and security of the United States."

### A. General considerations

Many of the factors already discussed in relation to AEA section 131.b. would also lend strong support to the conclusion that, taken as a whole, the Swiss Agreement and the plutonium retransfer consent to EURATOM would promote and not be inimical to, nor pose an unreasonable risk to, the common defense and security. These factors include the application of full-scope IAEA safeguards in Switzerland, the lack of evident motivation for any Swiss nuclear weapon program, the purely defensive character of Swiss military policy, the firm nonproliferation policies of Switzerland and the EURATOM Member States that are likely to be its principal nuclear trading partners, and Switzerland's deep-rooted democratic traditions. Neither Switzerland itself, nor its cooperation with EURATOM member States, is likely to endanger the common defense and security.

### B. Advance consents and approvals

In the Agreed Minute, the United States consents to two broad types of retransfer by Switzerland. These are retransfers to specified states and groups of states, and retransfers to listed facilities for specified purposes.

#### 1. Retransfers to specified states and groups of states

The United States has agreed to the retransfer of source material, low enriched uranium (less than 20% U-235), moderator material and equipment to states and groups of states listed in Annex 1 to the Agreed Minute. The listed states are Australia, Canada, the Czech Republic, Hungary, Japan, the Republic of Korea, Norway, Poland, and Slovakia. All have agreements for peaceful nuclear cooperation in force with the United States. EURATOM, which also has such an agreement in force, is the only group of states listed.

The United States has expressly retained the right to add states to or delete them from this list, temporarily or permanently. Moreover, this consent does not apply to retransfers of uranium for enrichment to 20% or more U-235.

### 2. Retransfers to listed facilities for specified purposes

The United States consents to the retransfer of nuclear material for reprocessing, storage or alteration in form or content, but only at facilities listed in Annex 2 to the Agreed Minute. At the time of entry into force, Annex 2 will list reprocessing facilities at La Hague and Marcoule, France, and at Sellafield and Dounreay, United Kingdom. Listed facilities for alteration in form or content of nuclear material (defined as conversion of plutonium, high enriched uranium or uranium 233, or fabrication of fuel containing plutonium, high enriched uranium or uranium 233) will be located at Mol and Dessel, Belgium; Hanau, Germany; Romans sur Isere, Veurey, Cadarache and Marcoule, France; and Dounreay and Sellfield, United Kingdom. Facilities may be added to Annex 2 only by agreement of the United States and Switzerland.

## C. U.S. controls over separation of plutonium, production of high enriched uranium, and their retransfer

The Agreed Minute does not give advance consent for the Swiss to reprocess irradiated material in Switzerland, to separate plutonium from unirradiated MOX in Switzerland, to produce high enriched uranium in Switzerland, or to retransfer uranium for production of HEU using nuclear material subject to the agreement. The United States would, therefore, retain the right to approve any such activity, either on a case-by-case basis or by granting an advance long-term consent.

## D. Conclusion

Based on all these considerations and the other detailed points covered in this analysis, it is the conclusion of this analysis that the proposed Agreement with Switzerland will promote, and will not be inimical to, or constitute an unreasonable risk to, the common defense and security.

## VI. FINAL CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing analysis,

- Performance of the proposed Agreement will promote, and will not constitute an unreasonable risk to, the common defense and security.
- The Agreement, including the advance consents and approvals, will not be inimical to the common defense and security.
- In the case of activities to which the standard in Section 131.b. of the Atomic Energy Act (AEA) applies, the consents and approvals in the Agreement will not result in a significant increase of the risk of proliferation.
- The consent to EURATOM for retransfers of Swiss plutonium recovered by reprocessing (including plutonium fabricated into mixed oxide fuel elements), subject to the U.S.-EURATOM Agreement, to Switzerland for use in that country's peaceful nuclear program meets all applicable standards of Section 131 of the AEA.

These conclusions support a recommendation to the Secretary of Energy that he determine that implementation of the Agreement as a whole will neither be inimical to the common defense and security nor result in an increase of the risk of proliferation, and that he and the Secretary of State jointly recommend that the President authorize execution of the proposed Agreement.

**ANNEX: Analysis of the Requirements of Sections 127 & 128 of the Atomic Energy Act of 1954, as amended**

Section 127 of the Atomic Energy Act establishes criteria for the licensing of "exports for peaceful nuclear uses from the United States of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology." In addition, Section 128 states that, as "a condition of continued United States export" of such materials, facilities and technology to a non-nuclear weapon state, IAEA safeguards must be "maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of export." In other words, Section 128 requires full-scope safeguards as a condition of continued U.S. supply. These criteria also apply to retransfers of U.S.-obligated nuclear material from EURATOM to Switzerland.

**Section 127 Criterion (1), and Section 128: Safeguards**

Paragraph (1) of section 127 requires that "IAEA safeguards ... be applied with respect to any ... material or facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable agreement for cooperation, and to any special nuclear material used in or produced through the use thereof." In addition, as noted above, section 128 requires that non-nuclear weapon states maintain full-scope IAEA safeguards as a condition of continued U.S. supply.

Article 5, paragraph 1 of the agreement will meet the safeguards requirements of both sections 127 and 128 for exports to Switzerland. This paragraph reads in pertinent part as follows:

> Nuclear material transferred to Switzerland pursuant to this agreement and any nuclear material used in or produced through the use of any nuclear material, moderator material or equipment so transferred shall be subject to safeguards in accordance with the provisions of the agreement between Switzerland and the [International Atomic Energy] Agency ... under which Agency safeguards are applied with respect to all nuclear material in all nuclear facilities within the territory of Switzerland, under its jurisdiction or control anywhere.

The definition of "equipment" in Article 1 includes all utilization facilities listed by the Nuclear Regulatory Commission as subject to the section 127 criteria; export of production facilities and sensitive nuclear technology will not be authorized by this agreement.

**Section 127 Criterion (2): Non-explosive use**

Paragraph 2 of section 127 requires that no " ... material or facilities proposed to be exported or previously exported and subject to the applicable agreement for cooperation, and no special nuclear material used in or produced through the use of such materials, facilities or ... technology, will be used for any nuclear explosive device or for research on or development of any nuclear explosive device." In response, Article 3 of the agreement provides as follows:

> No nuclear material, moderator material and equipment transferred pursuant to this Agreement and no nuclear material used in or produced through the use of any such nuclear material, moderator material or equipment shall be used for any nuclear explosive device or development of any nuclear explosive device, or for any military purpose.

**Section 127 Criterion (3): physical security**

Under paragraph 3 of section 127, "[a]dequate physical security measures" must be "maintained with respect to ... material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof." The paragraph goes on to state that when the Nuclear Regulatory Commission has promulgated regulations establishing levels of physical security for U.S. exports as required by the Nuclear Non-Proliferation Act of 1978, "physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the applicable regulations."

The Commission regulations carrying out this responsibility are published at 10 CFR 110.43. These incorporate by reference, as minimum standards for physical protection, the International Atomic Energy Agency standards published in Agency document INFCIRC/225, entitled "The Physical Protection of Nuclear Material," as periodically revised. Written assurances from the recipient country that these standards will be maintained are among the factors the Commission considers in determining the adequacy of foreign physical protection measures.

Article 4 of the agreement deals with physical protection of nuclear material as follows:

> Each Party shall take such measures as are necessary to ensure, within its jurisdiction, physical protection of nuclear material transferred pursuant to this Agreement and any nuclear material used in or produced through the use of nuclear material, moderator material or equipment transferred pursuant to this agreement and apply criteria in accordance with levels of physical protection at least equivalent to those set out in the Recommendations.

Article 1(I) in turn provides:

> Recommendations means the recommendations published in document INFCIRC/225/Rev. 3 of the Agency entitled "the Physical Protection of Nuclear Material" and subsequent revisions as agreed by the Parties.

The Agreement thus constitutes a written assurance by Switzerland that it will maintain the standards approved by the Nuclear Regulatory Commission.

**Section 127 Criterion (4): Retransfers**

Under Paragraph 4 of section 127, "[n]o ... materials, facilities or sensitive nuclear technology proposed to be exported and no special nuclear material used in or produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained ... ." Article 7 of the agreement therefore provides as follows:

> No nuclear material, moderator material or equipment transferred pursuant to this Agreement and no special fissionable material produced through the use of any nuclear material, moderator material or equipment so transferred shall be retransferred, unless the Parties agree, beyond the jurisdiction of the Party.

As discussed in the main body of the Analysis, the United States has by an Agreed Minute, pursuant to Article 12 of the agreement, provided long-term advance consent to retransfers of source material, low enriched uranium, moderator material and equipment to states listed in Annex 1 to the Agreed Minute. The states or group of states so listed are as follows: Australia, Canada, Czech Republic, Hungary, Japan, Republic of Korea, Norway, Poland, Slovakia, and the European Atomic Energy Community. Switzerland may retransfer to these countries until the United States removes them, temporarily or permanently, from the list.

**Section 127 Criterion (5): Reprocessing and alteration in form or content**

Paragraph 5 of section 127 requires that "[n]o ... material proposed to be exported and no special nuclear material used in or produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material ... shall be altered in form or content, unless the prior approval of the United States is obtained ... ." The following articles of the agreement deal with these activities:

**Article 9: Reprocessing**

Nuclear material transferred pursuant to this Agreement or used in or produced through the use of nuclear material, moderator material or equipment so transferred shall not be reprocessed unless the Parties agree.

**Article 10: Alteration in form or content**

No plutonium, uranium 233, high enriched uranium or irradiated nuclear material transferred pursuant to this Agreement or used in or produced through the use of any nuclear material, moderator material or equipment so transferred shall be altered in form or content unless the Parties agree.

As noted in the main body of the Analysis, the United States has, by an Agreed Minute, given its prior agreement to retransfer for the purposes of reprocessing and alteration at specific EURATOM facilities listed in an annex to the Agreed Minute. Facilities may be added to this list only with the agreement of the United States. No prior agreement has been given to reprocessing or alteration within Switzerland.

**Section 127 Criterion (6): Sensitive nuclear technology**

Under paragraph 6 of section 127, no sensitive nuclear technology may be exported unless all the other criteria in section 127 will apply to any nuclear material or equipment produced or constructed through the use of the exported technology. This criterion is inapplicable, since no sensitive nuclear technology will be exported under the cooperation agreement with Switzerland.

**Conclusions**

On the basis of the above discussion, it is the view of the Executive branch that all applicable criteria in sections 127 and 128 of the Atomic Energy Act will be met for exports from the United States that would take place under the cooperation agreement with Switzerland.


UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 19, 1997

The President
The White House
Washington, DC 20500

Dear Mr. President:

In accordance with the provisions of Section 123 of the Atomic Energy Act, as amended, the Nuclear Regulatory Commission has reviewed the proposed Agreement for Cooperation with Switzerland and supporting draft documents. It is the view of the Commission that the proposed Agreement includes all of the provisions required by Section 123 of the Atomic Energy Act, as amended. The Commission therefore recommends that you make the requisite statutory determination, approve the Agreement, and authorize its execution.

Respectfully,

Shirley Ann Jackson

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